Douglas

CALIFORNIA COASTAL COMMISSION
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March 3, 1982

TO: STATE COMMISSIONERS

FROM: MICHAEL L. FISCHER, EXECUTIVE DIRECTOR
PETER DOUGLAS, CHIEF DEPUTY DIRECTOR

SUBJECT: HOLLISTER RANCH PUBLIC ACCESS PROGRAM AND THE ENVIRONMENTAL ACCESS REPORT

Attached is a copy of the report on sensitive coastal resources relative to the Hollister Ranch access program prepared by the Environmental Assessment Panel.

Background: In June 1979, the Commission granted several permits for development within Hollister Ranch subject to conditions designed to ensure compliance with the public access policies of the Coastal Act. These conditional approvals were then challenged in court by several applicants. Later in 1979, the Legislature amended the Coastal Act (adding sections 30610.3 and 30610.4) and established a mechanism whereby the Act's public access policies could be met in cases such as the Hollister Ranch, through, among other elements, payment of an in-lieu fee (the Calvo approach added by Chapter 919, Statutes of 1979). In order to implement the Calvo bill approach, the Commission had to first identify Hollister Ranch as a subdivision meeting the requirements of section 30610.3(a) of the P.R.C. The Commission made the necessary findings and designated the Hollister Ranch as an area appropriate for the application of the Calvo approach to public access in September of 1980. In light of the Calvo bill, the cases then pending in court were remanded to the Commission for further action consistent with the requirements of the new amendments to the Coastal Act.

At the time of the Commission's action in September of 1980, the Hollister Ranch Homeowners Association requested that the Commission undertake an environmental assessment of the natural resources in the area through a task force of experts before adopting a public access program for the Ranch. The Commission agreed in part with the request from the Homeowners Association which in late November 1980 submitted a list of names as suggested panelists. In April 1981, the Commission approved the establishment of a panel of three experts and identified a series of work tasks for the evaluation of appropriate levels of public access within Hollister Ranch (Exhibit 1). For a variety of reasons, both internal and external to the operations of the Commission, the contract for the conduct and completion of this study was delayed and then extended on several occasions. The attached report is the product of the work authorized in April 1981.

Because of the requirements of the Calvo bill and because the Commission felt it was important to move forward toward a solution, a specific public access program was adopted in August 1981 (Exhibit 2). Pursuant to the adopted access program, the Commission authorized work to begin to obtain the necessary appraisals called for under the Calvo bill. At the same time, the Commission made clear that those portions of the access program relating to management of the accessways were being approved in concept only. The specific alignments of the accessways were adopted on the understanding that they may be adjusted at a later date to reflect the conclusions of the environmental studies.

Recommendation: The staff will be prepared at the briefing on the attached report to discuss steps that the Commission can take to move forward with the implementation of the access program. We have no specific recommendation for action at this time.

attachment

P. D.

Sensitive Coastal Resources in Relation to California Coastal Commission - Coastal Conservancy "Adopted Coastal Access Program for the Hollister Ranch"

A Report of the Environmental Assessment Panel

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Preliminary Report	30 September 1981
Draft Final Report	30 November 1981
Final Report	8 February 1982

Introduction

On 18 August 1981 the California Coastal Commission, meeting in Santa Barbara, California adopted a coastal access program for the Hollister Ranch. The "Adopted Coastal Access Program for Hollister Ranch" ("Access Program" hereafter) proposed the acquisition of public use easements for lateral access within the Ranch; vertical access at six locations to the 8.5 miles of state-owned tidelands adjoining the Ranch; and various support facilities. Access would be by tram and bicycle along Rancho Real, the main east-west road within the Ranch, and by hiking along a trail that would lie within the Rancho Real easement or the Texaco pipeline easement, run along the beach or in three locations pass through privately owned parcels. Except for the last mentioned case, all proposed public use easements would be through lands owned in common by the Hollister Ranch Owner's Association. The period of access would be from 9AM to sunset.

In the recognition that the natural resources of the Hollister Ranch shoreline are rich in part because of the low level of previous human activity in the area, and in the recognition of the possibility that increased public use might be detrimental to the natural resources of the Hollister Ranch shoreline, the "Access Program" provided further that the amount and location of public access would be set only after the completion of the "environmental assessment of the beach environment" authorized by the Commission in April 1981. This report and recommendations are the result of that study, conducted by Drs. Christopher Onuf, Marine Science Institute, University of California, Santa Barbara (chairman); Eric Hochberg, Santa Barbara Museum of Natural History; and Timothy Farley, Planning Division, California Department of Fish and Game.

The report begins with a statement of assumptions, sources, and procedures used to perform the analysis. The results of the analysis follow. Much of the analysis appeared in Dr. Onuf's preliminary report to the Commission of

30 September 1981, entitled "Sensitive Coastal Resources in Relation to Proposed Public Access to the Hollister Ranch Shoreline". The preliminary report was provided to the Hollister Ranch Owner's Association, as well as the staff of the Commission. The final report incorporates responses to comments of Hollister Ranch representatives (Exhibit 2) and the Commission staff on the preliminary report. The conclusion is a recommendation about the amount of public access and a set of recommendations in the form of three alternatives about how a given level of public access might be apportioned among different access points and over different times of year to minimize adverse effects on natural resources of the beaches.

Assumptions, Sources of Information and Procedures Used in Analysis

The validity of any logical analysis of alternatives depends upon the acceptability of the assumptions of the analysis. The key assumptions of this analysis of the effects of human use of beaches on natural resources are as follows:

1) Any human activity will alter the state of the living and non-living resources of a prescribed area; such alterations can occur at a rate and to a degree which will substantially modify the size of species populations or the number of species in a community.

2) The more human activity in an area (number of people and amount of movement or manipulation of surroundings) the greater will be the alteration of living and non-living resources.

3) Human-caused alterations which will substantially alter the established relationships among existing populations will be regarded as harmful, and the principle aim of controlling public access will be to minimize the alteration of living resources.

4) Different kinds of habitats differ in their sensitivity to human-caused alterations.

5) The amount of alteration that a habitat will undergo because of human access will increase with the amount of time that the habitat is exposed.

6) The amount of alteration that a habitat will undergo because of human access will decrease with distance from points of access.

The strategy of the analysis is to rank the preferability of the six access points of the Coastal Commission-Coastal Conservancy "Proposed Coastal Access Program for the Hollister Ranch" of 18 August 1981 according to their distances from sensitive resources. Likewise, the amount and timing of access will be evaluated in terms of the timing of the vulnerability of sensitive resources. For this analysis, four categories of resources sensitive to public access are considered: rocky intertidal areas, marine mammals, birds, and wetlands at the mouths of creeks. Within rocky intertidal areas, the richness and sensitivity of the habitat is assumed to increase at lower levels on the beach.

The sources used in the analysis are maps of environmentally sensitive areas (Santa Barbara County 1981), a biological survey (Santa Barbara Museum of Natural History 1975), photographs and habitat maps associated with the report to the Pacific OCS Office of the Bureau of Land Management "California Mainland Rocky Intertidal Aerial Survey from Pt. Arguello to Pt. Loma" (Littler and Littler 1980), NOAA's "Southern California Environmental Sensitivity Mapping Project," site visits, notes and photographs of the Hollister Ranch Coast, and personal opinions about habitat richness and sensitivity, based on experience in other Southern California intertidal areas. Statistics on visitor

attendance at State Beaches were obtained from the California Department of Parks and Recreation. The Dillingham Corporation tidal curve calendar for Los Angeles Outer Harbor was used to compute the times of exposure of the +1 ft and 0 ft MLLW tidal levels.

The procedure for compiling the available information consisted of superimposing information from other sources on the LCP Environmentally Sensitive Habitat Area Maps covering the Hollister Ranch coast. For each proposed access point, distances were measured both east and west to the nearest high beach and low beach rocky intertidal areas, creek-mouth wetlands, marine mammal haulouts and areas of note for birds. Also the total length of high and low beach rocky intertidal area was measured 5000 ft to the east and west of each proposed access point. Dr. Onuf and Bud Laurent, Marine Resources Region of the California Department of Fish and Game, visited all sites on 11 and 12 November 1981 to determine whether these descriptors of habitat sensitivity corresponded with direct observations. Onuf made a quick visual survey by riding a bicycle 5000 ft east and west of each vertical access while Laurent made more detailed observations closer to each access point (Exhibit 1). Dr. Hochberg surveyed all areas in 1975.

As mentioned above, the richest (in terms of abundance and variety of organisms) and most interesting rocky intertidal habitats are low on the beach, at least in this region. Also in this region the tidal cycles are complex, with two low tides of different height each day, a biweekly cycle from spring (large difference between high and low tides, coinciding with new and full moons) to neap (small difference between high and low tides, coinciding with the waxing and waning quarter moons) to spring tides, a semi-annual cycle in spring tides from higher to lower back to higher amplitudes,

and an annual cycle from night time extreme low tides in summer to daytime extreme low tides in winter. Since the proposed period of public access is from 9 am to sunset, this makes for major differences in how much the rich lowest part of the intertidal zone is accessible to the public, depending on time of year. For each day of 1981 the times below +1 ft and 0 ft MLLW was read off from the published curves for Los Angeles Outer Harbor after adjusting for the 22-minute lag between LA and Santa Barbara, daylight savings when applicable, and the 9 am to sunset access period.

Visitor attendance at State Beaches is reported as monthly totals in four categories for each beach: paid day-use, free day-use, camping and total. Although the different categories of visitors may differ in their likelihood of taking advantage of the access program, at this stage only total visitors were considered. To establish the temporal pattern of beach use, averages for the last five years were computed for each month for the four State Beaches of the south coast of Santa Barbara County: Carpinteria, El Capitan, Refugio and Gaviota. Daily counts were available for August 1981 for the last three beaches. Weekday vs weekend use was determined from these data. Yearly totals for the last five years were examined for these four beaches and others closer to urban centers to look for trends in use and differences with distance from centers of population. (Should we anticipate much heavier use in the near future in the Gaviota area or is there a shift to heavier use of urban area beaches as fuel becomes more expensive?)

The Analysis

Ranking the access points: the location of proposed access points in relation to sensitive resources. Although poor in rocky intertidal habitats

on a statewide basis (Exhibit 1), the Hollister Ranch shoreline is rich in rocky intertidal areas compared to the mainland shore of the rest of Southern California. Whereas Littler and Littler (1980) reported that rocky areas accounted for 25% of upper intertidal shore and 36% of lower intertidal shore, their maps indicate that 30% and 74% of the upper and lower intertidal respectively were rocky in Hollister Ranch. The rocky areas are irregularly distributed, being more concentrated toward the eastern end of the property (Figure 1). This leads to large differences among the proposed access points in distance to nearest rocky intertidal areas and the total length of rocky shore 5000 ft either way from the access point (Table 1). The easternmost access points (Agua Caliente and Alegria) clearly are closest to and richest in rocky intertidal areas, while the other four areas do not differ appreciably among themselves. Data on the other sensitive resources are sketchy. According to the LCP Environmentally Sensitive Habitat Areas Maps, four of the proposed access points are adjacent to small wetlands at the mouths of creeks (Agua Caliente, Alegria, Drakes and Bulito Creek, Figure 1). In addition, the creek that discharges at Drakes is listed as an anadromous fish stream. Marine mammal haulouts are indicated at Drakes and approximately one mile west of Drakes. Onuf observed 11 seals at the former site on a bike trip along the entire Hollister Ranch shore 17 August 1981. Only the Drakes and Sacate access points are within one mile of a haulout. None were observed during the November visits. Observations on birds at different beach areas are limited to nine censuses in 1975 by Santa Barbara Museum of Natural History staff and subjective impressions during our visits. The only certain indication of an area where increased human access would have detrimental effects was that Onuf flushed several cormorants from a cliff face approximately 0.3 miles

east of Agua Caliente. Guano streaks indicated that this was a regular roosting spot. This is a rare occurrence on the mainland coast south of Pt. Conception. We believe that the birds would abandon the area if disturbed frequently. Subjectively, a greater variety of birds occurred in a given length of shore at the eastern sites (Onuf and Santa Barbara Museum of Natural History staff, personal communication); (however see Exhibit 2, item 4). Obviously, frequent and systematic observations will be necessary to determine whether the sites differ in ways of significance for the management program, and this should be a part of the monitoring program.

These data lead to an unambiguous ranking of the suitability of the proposed access points. Agua Caliente and Alegria are least suitable. Both are close to extensive areas of rocky intertidal habitat (Alegria may be somewhat richer) and creek mouth wetlands. In addition, Agua Caliente is near a rare (at least onshore on the mainland) roosting area for cormorants. No clear distinctions can be made among the remaining access points on the basis of rocky intertidal areas; however, Drakes clearly is less appropriate than the remainder because it is used as a haulout and because it is immediately adjacent to an anadromous fish stream with a wetland at its mouth. Bulito Creek access is next to a creek mouth wetland. The constraints of sensitive resources seem least at Sacate and San Augustine.

Based on suitability for public access, the ranking of proposed access points from highest to lowest is: San Augustine, Sacate > Bulito Creek > Drakes > Alegria, Agua Caliente.

Determinants of acceptable levels of public use. Temporal patterns - the tides. As stated in the assumptions above, the richest and most sensitive

rocky intertidal areas are lowest on the beach. Obviously if they are covered by water when people are present (especially with breaking waves) they will be less likely to suffer harm caused by human activities. Therefore, it is essential to know when and for how long these areas are exposed when people could be present. In my opinion, the critical tidal levels are +1 ft and 0 ft MLLW. The tops of rocks heavily covered with plants and animals begin to emerge at +1 ft. Below 0 ft long and continuous expanses of occupied rock surface are exposed.

Striking differences are evident in the number of days in a month when the tides drop below +1 ft and 0 ft during the 9 am to sunset access period, as well as in the duration of exposure (Figure 2). Even though the access period is up to 50% longer mid-summer than midwinter (9 am to 8:15 pm and 9 am to 4:51 pm, respectively) the number of days in a month with tides below +1 ft drops from a maximum of 25 in March to a minimum of 1 in August, and the total number of hours when tides are below that level drops even more precipitously: from 95 hours in March to 0.3 hours in August. For 0 ft the corresponding values are 15 days in February and March vs 0 days in July, August and September and 37 hours in February vs 0 hours in July, August and September. Clearly, the rich, lower part of the rocky intertidal is most accessible and therefore subject to degradation from human activity in winter and is virtually inaccessible, therefore immune to human disturbance, in summer.

Temporal patterns - the people. The other necessary ingredient to assess the possible impacts of public access on sensitive resources is to learn as much as possible about the patterns of use of beach areas. California Department of Parks and Recreation statistics are invaluable in this regard,

especially since the staging area for the proposed access program into Hollister Ranch is an existing state park. Not surprisingly, use is heavily concentrated in the summer months in all four state beaches along the south coast of Santa Barbara County. Average daily visitor attendance is maximal in July or August and minimal in December or January. This seasonal disproportion increases from Carpinteria to El Capitan to Refugio to Gaviota: the percent that the month of minimal attendance is of the month of maximal attendance decreases for these parks from 29% to 23% to 20% to 16%. Average daily attendance for the whole year decreases in the same order: 1092, 818, 528 and 510 for Carpinteria, El Capitan, Refugio and Gaviota, respectively. Apparently (and reasonably) recreation areas that are more remote from major metropolitan areas are less heavily used, and use is more heavily concentrated in the summer period when extended vacations are most commonly taken.

The most important consequence of this pattern of beach use for the proposed access program to the Hollister Ranch shore is that the period of heavy use by people coincides with the period of minimal exposure of the rich, low rocky intertidal areas. In the three months of maximal use (June, July and August, 970 visitors per day on the average at Gaviota) the +1 and 0 ft tidal levels are exposed for a total of 23 hours and 1.1 hours respectively. In contrast average daily attendance November through April, the period of maximal exposure of the low beach, is 280 persons per day. (In this period, total exposure ranged from 44 to 95 hours per month and 14 to 37 hours per month for +1 ft and 0 ft tidal levels respectively.)

Fortuitously, human habits and the tidal regime along this coast are phased so that the opportunity for damage to rich low rocky intertidal habitats is reduced. To a certain extent this is also true for most birds, which are

either migratory and on their summer grounds farther north or, if local, are breeding, most commonly in colonies on the Channel Islands. One feature of marine mammal behavior operates to reduce their susceptibility to human disturbance. Hauling out of marine mammals along the mainland coast has a day-night periodicity. Animals normally come up on the beaches or on rocky intertidal shelves at night, especially during low tides. A few animals may remain on the beach during the day, but the majority return to the safety of the sea during the period when human activity will be greatest along the beaches. The only exceptions seem to occur during the spring when some animals remain on the beach to nurse pups or when pups are left on the beach while the mothers are foraging.

Four other factors should be considered in trying to project future use from past data. First, I have reported use as 5-year averages to get the most reliable depiction of seasonal patterns; however, this could obscure long-term trends. In particular, is beach use in this area increasing as the population of Southern California increases? Apparently not. In fact, visitor attendance at Gaviota State Park was less in 1980-81 (July to June) than in the four previous years (Table 2). For the County only El Capitan showed a clear increase during the five years. Second, is there an underlying change in recreational use patterns that might affect future levels of use? Judging from the most heavily used state beaches (Bolsa Chica, Huntington and San Buenaventura) beach use is increasing over time (Table 2) rather than holding steady (as in this general area) or declining (as at Gaviota, perhaps). A possible explanation is the one suggested above: as fuel costs escalate, beach users from the metropolitan areas of Southern California are increasingly visiting their

local beaches rather than driving to more remote ones, such as Gaviota. If this is true, then current figures will not be gross underestimates of future use in this area. Third, average daily figures for a month may obscure major differences in use within a week. The monthly summaries provided by the Department of Parks and Recreation do not allow these distinctions to be made; however, I did obtain the raw daily records for August 1981 for the three Gaviota Area beaches: El Capitan, Refugio and Gaviota. For these beaches based on this one month, weekend use is 28%, 25% and 23% greater than weekday use, respectively. Fourth, actual beach attendance will not be the best measure of demand, if people are turned away. The raw daily records provide this as well. The daily averages were: at El Capitan 1301 admitted vs 266 turned away, Refugio 950 vs 438, Gaviota 852 vs 111. Since more parking will be provided if the access program is instituted, more people will use the park in the summer than the averages of Table 1 indicate. In winter, when capacity is never reached, this will not be a consideration.

Discussion and Recommendations

Amount of Access. There is substantial agreement among available reports that public access can have adverse effects on the natural resources of intertidal areas. Widdowson (1971) in his analysis of changes in the algal flora of the Los Angeles area between 1959 and 1969 found that decreases were more highly correlated with human use of intertidal areas than pollution, even though in the period up to 1959 pollution probably was the major cause of reductions at the same sites (Dawson, 1965). At Duxbury Reef, north of San Francisco, Chan (1972) noted that intertidal organisms were fewest and least diverse where access was easiest and that an educational program led to an improvement

at this site. At Cabrillo National Monument near San Diego Zedler (1978) noted differences in the abundances or sizes of a variety of intertidal organisms between sites with different levels of human use or at the same site with changes in human use over time. These were related to changes observed in experimental treatments that were presumed to mimic the effects of public access (such as trampling or the removal and replacement of limpets). Primarily at sites along the Palos Verdes Peninsula Ghazanshahi, et al. (1981) have related the abundances of several species of algae and invertebrates to the amount of human activity at a site. They distinguish three groups of organisms according to their responses to public use: a group of conspicuous invertebrates that are chosen for taking (the mussel Mytilus californianus, the limpets Lottia gigantea and Collisella digitalis, and the starfish Pisaster ochraceus) and are reduced where public use is high; algae, especially the dominant forms, and sessile invertebrates that are reduced by non-specific trampling; and rare or inconspicuous, usually small animals that often increase where public use is high, apparently because of the reductions in the species that otherwise would be dominant. Based on their studies of individual key species Ghazanshahi, et al. (1981) suggested that effects are small below use levels of 2 persons per 100 meters of shore, with the possible exception of the starfish Pisaster ochraceus. The level of use was determined at around noon, the normal time of maximal use. In an evaluation of the determinants of the level of use Ghazanshahi (1981) reported a 14.5% decline in the intensity of use for each 100 meters away from the point of maximal use in an area (always closest to the nearest point to which visitors could drive their cars).

All of the studies cited above apply to rocky intertidal areas. We have seen only one report that considers public use impacts on the biota of a sandy

beach (Wheeler, 1979). Vehicular use in an intertidal area of Cape Cod National Seashore was found to cause mortality or reductions in growth rates for two species of polychaete worms and the clam Mya arenaria.

All of these studies have major limitations. Most depend upon comparisons between sites or years where or when much is likely to be different besides the intensity of human use, the only factor considered in the analyses. The experimental treatments allow identification of cause and effect, but there always is difficulty in relating the kinds or amounts of experimental manipulation back to what public use really is (in the extreme cases driving over the same path with a one-half ton pick-up truck 50 times a day for 20 days [Wheeler 1979] or 400 steps on an algal turf [Zedler 1978]). Nor do the situations studied allow for easy translation to the conditions at Hollister Ranch. For instance, two persons per 100 meters of shore, which Ghazanshahi, et al. (1981) suggest will have small effects on rocky intertidal areas, would amount to 270 persons if evenly distributed along the 8.5 miles of the Hollister Ranch shore. However, we have no idea what proportion of the daily quota would be on the beach at one time, to what extent they will be concentrated in sandy areas as opposed to rocky areas, or how close they will remain to an access point. We conclude that no "safe" level of access can be set with confidence beforehand. Exhibits 2 and 3, comments to our preliminary report by Alvin Remmenga of the Hollister Ranch and Lana Rose of Santa Barbara City College, set forth other reasons to challenge the validity of a quota projected from our existing information.

Given these uncertainties we propose that the surest way to provide appropriate protection for sensitive beach resources is to initiate the access program only after a full year of resource and beach use monitoring has been

completed and then at a low level, for instance 100 members of the public per day. The quota would be adjusted on the basis of a comparison between the first and second years of monitoring (without and with public access, respectively). An alternative is to allow public access at some sites at the outset of the Access Program while maintaining the status quo at the remaining sites during the first year (vertical access limited to Hollister Ranch residents and guests, access by others along the beach or by boat) and monitoring a nearby site with very low human use as a control with which to determine the effects of existing use.

Timing of access. The proposed period of allowed access from 9 am to sunset, in conjunction with the well-established patterns of beach use and exposure of low tide areas greatly reduce the likelihood of harm to sensitive beach resources. Without any regulation besides the 9 am to sunset time limit, beach use by people is least when the richest and most sensitive rocky intertidal areas are most exposed: most often, for longest and the biggest area of habitats; (however, see Exhibit 2, item 5 and Exhibit 3, item 4). Even so, the critical period will be winter. Much more must be known about how people will use the area before it can be concluded with confidence that additional restrictions will not be necessary at this time of year. We suggest that the initial quota should be 100 persons per day in winter (10 October to 19 May, based on 1981 tides) but could be relaxed to 200 per day in summer (20 May to 9 October). As mentioned in the preceding paragraph, these quotas should be regarded as strictly provisional, to be used and adjusted only in conjunction with close monitoring.

Locating the vertical access corridors. Differences in the distances to sensitive resources yielded a clear ranking of the suitability of the six

possible access points, from the viewpoint of natural resource protection. Agua Caliente and Alegria are most sensitive because of their proximity to sensitive rocky intertidal and wetland habitats. Drakes is next most sensitive because it is near a marine mammal haulout and a wetland at the mouth of an anadromous fish stream. Bulito Creek follows in sensitivity, because of its wetland. Sacate and San Augustine are least sensitive. This ranking when considered together with a few other factor leads to three alternative recommendations.

Alternative 1: restrict all public access to Sacate in the first year of public access through the Ranch. Allow access via the Access Program only after a full year of monitoring. Advantages. This will concentrate the use at one of the sites with the fewest constraints to public access (however, see Exhibit 2, item 4). The gradient from very high to very low intensities of use caused by limiting access to one site will enable the monitoring program to provide the most sensitive test of impacts for a given expense. Because the highest use will be in an area relatively far from the richest sites, the determination of the intensity of use at which changes occur can be made without jeopardizing the prime resources. This would be hard to assure with dispersed access. If the YMCA of Metropolitan Los Angeles develops its proposed facility at Cuarta (≈1/4 mile east of Sacate and on the same stretch of beach between headlands), the test will be all the more powerful. Furthermore, the site will be subjected to high use compared to historic levels (with attendant impacts, perhaps) regardless of the "Access Program." For all these reasons, it is advisable to concentrate use at this site until the consequences of beach use are better understood. Disadvantages. If prime resource areas lie between

this access and the most popular surfing spots, this might cause heavier damage due to trampling than would be the case if access were provided elsewhere. It may be difficult to secure the other vertical access corridors against public use.

Alternative 2: Allow public access via the Access Program immediately at San Augustine, Sacate, and Agua Caliente. Advantages. This provides the quickest assessment of the effects of public access over a wide range of presumed sensitivity to human activities. It also provides the quickest discrimination between the effects of existing use and the additional effect of increased public use encouraged by the Access Program. This may allow for the most rapid revision of the Access Program, in the event that unacceptable changes are occurring. Disadvantages. Those listed for Alternative 1 will also apply, but to a lesser degree. In addition, access is provided at a site of presumed high sensitivity and richness in natural resources. More of value is at risk in detecting first damage at Agua Caliente than at most other sites. The monitoring program will be either less effective or more expensive than for Alternative 1.

Alternative 3: Allow the public to use all six proposed vertical access corridors but only after a full year of monitoring. Advantages. If use is evenly distributed this would minimize the number of people at any one site. The disadvantages of Alternative 1 would be minimized. Disadvantages. It is unlikely that use would be distributed evenly. Hikers and bicyclists, at least, might be more likely to stop and perhaps stay at the closest access points to the staging area in Gaviota State Park. Unfortunately, these are the sites that we have ranked as most sensitive: Agua Caliente and Alegria. The monitoring

program will be either less effective or more expensive than for the other alternatives. Adverse effects will be more widely distributed when they are first detected than for the other alternatives. The adverse effects may be most concentrated at the most sensitive sites (closest to Gaviota State Park).

Members of the Panel do not agree in their choice of a preferred alternative. Two members strongly endorse Alternative 1, because it provides the best protection of what they perceive to be the prime resources while the Access Program is being evaluated. The third member endorses Alternative 2 as being a more rigorous, simultaneous test of existing use vs the incremental effects attributable to the Access Program. The whole Panel agrees that Alternative 3 should not be considered unless there are compelling reasons beyond the scope of this analysis. We have one other recommendation about the location of facilities as proposed in the "Access Program." We see the possibility of difficulties in placing the hiking trail along the bluff in the vicinity of Drakes Beach. Zedler (1978) noted bluff-top erosion as one of the most serious impacts of public access at Cabrillo National Monument. Is it possible to use the road or the Texaco pipeline easement in this area? (This question also applies to the other portions of the route that cross privately owned parcels.) Since both the road and the pipeline easements are subject to disturbance associated with their current uses, the passage of the public in these areas might be tolerated more easily (both by the plants and animals and by Ranch residents) than through privately owned parcels. We have not surveyed any of these sites and thus do not know whether this recommendation merits serious consideration.

The monitoring program. The design of the monitoring program depends in a number of important ways on which of the three alternatives is chosen for

distributing access. However, in all cases a control site should be maintained with low levels of human use that will not change because of the "Access Program" or because of additional development of the Hollister Ranch. This is necessary to distinguish among various kinds of human effects in the presence of other sources of year to year variation. Also the basic sampling procedures and what especially to look for should apply in all cases. As with Chan (1972), Zedler (1978) and Ghazanshahi et al. (1981), two kinds of monitoring should be carried out: one to determine the location and the intensity of use and the other to assess the state of the living resources. Dr. Joe Devinny, Environmental Engineering Program, University of Southern California, currently is preparing a handbook for the management of rocky intertidal areas. This should provide valuable guidance. Ghazanshahi (1981) provides techniques for assessing the intensity of human use of rocky intertidal areas. Ghazanshahi et al. (1981) provides techniques for assessing the state of the living resources. Gonor and Kemp (1978) provides a more general and rigorous review of procedures for ecological assessments in intertidal areas. Lists of sensitive species or groups of organisms from Chan (1970), Zedler (1978), Devinny et al. (1980) and Ghazanshahi et al. (1981) overlap considerably. Even though each study has its limitations, similar effects showing up in a variety of locations and times strongly support the validity of the common conclusions.

As stressed in earlier sections, the monitoring program should begin at least a year in advance of public access through Ranch lands, to be most useful for future management. This will be the best way to determine the present level of beach use, so that some discrimination may be possible between effects attributable to the "Access Program" and effects attributable to current activities by Ranch residents and others. We consider this before-and after

comparison essential to proper evaluation of the "Access Program," primarily because it is expected that users of the "Access Program" will use the beach very differently from Ranch residents. (The before-and-after comparison is not essential if a suitable control site with low levels of human use, not to be affected by the "Access Program" or future development of Ranch can be found. Since Gaviota State Park lies immediately to the east and a liquefied natural gas facility may be constructed immediately to the west, a nearby control area may be hard to find.) For the most part we agree with the contention that Ranch residents are likely to be more responsible in their treatment of the contiguous shore environments than the unsupervised general public (Exhibit 2, items 1 and 3; Exhibit 3, item 4), however we see two ways in which current activities actually might magnify the impacts of Ranch residents compared to those of an equal number of the general public arriving via the Access Program: the use of motor vehicles and the presence of dogs on the beach. Both could magnify the effects of a single person greatly beyond what he would have alone on foot. We suspect that birds and marine mammals would be most susceptible to these disturbances and recommend that part of the monitoring program be designed specifically to assess the effects of beach walkers alone and together with current levels of motor vehicle and dog use. At the present, we are discounting the adverse effects of motor vehicles by compaction of the sand (Wheeler 1979) and abrasion of attached organisms on flat basement rock, because use seems to be low, and natural alterations are frequent and large (removal and deposition of sand and flotsam).

The determination of the intensity of use should take account of where, when and what.

Where: Instantaneous counts should be made of people present in sensitive resource areas (prime areas of rocky intertidal shore, such as near Alegria; creek mouth wetlands; marine mammal haulouts; areas of greatest variety and abundance of birds) but also at access points and at successively greater distances from access points, regardless of the sensitive resources. This will test the strategy that protection can be accomplished by separating access points from sensitive areas and, if so, how much separation is required.

When: The level of use should be related to time of day, day of week, season, tide, weather and surf.

What: As well as how many, it is crucial to have some idea of what people are doing in different areas. For instance, in rocky areas effects will be large by collectors and active explorers (turning over rocks, poking things and scrambling over rather than walking around rocks), moderate by surf-fishermen (possibly taking some invertebrates for bait) and small by beach walkers and joggers (usually there is sand or relatively barren flat rock nearby, so people can and will pass more easily by avoiding the rocks with abundant marine life).

The assessment of the condition of the living resources of the beach environment will depend on the resource. For rocky areas, the monitoring program should consist of seasonal quadrat sampling along permanent transects set in high, middle and low parts of the intertidal shore. The surveys will be counts or estimates of percent cover of different organisms in a nested array of quadrats of different sizes. (Bigger quadrats are necessary to sample reliably the rarer, big and motile animals, such as starfish, sea urchins and snails). The study sites should be located in reference to the assessment of human use,

so that not only areas of highest sensitivity are covered, but also the full range of intensity of use is represented. Based on the citations listed at the beginning of this section, the key species to monitor for possible effects of public use are: coralline algae and Phyllospadix spp. (plants); Anthopleura spp. (sea anemones); Phragmatopoma californica and Spirorbis spp. (worms); Acanthina spirata, Collisella digitalis, C. scabra, Lottia gigantea and Mytilus californianus (molluscs); Balanus glandula, Chthamalus fissus, Pollicipes polymerus (barnacles); Pisaster spp. (starfish).

For birds and marine mammals, censuses should be made at least monthly, at different times throughout each sample day. For birds, study sites should be selected to include the richest areas under present conditions and a wide range of intensity of use under future conditions. Obviously, the study sites for marine mammals will be haulout areas (two of which have already been identified).

The Commission's decision on where to allow access will establish how human use is distributed along the shore. This will influence the best location of sites for the monitoring program. Alternative 1 (concentrating access at Sacate) sets up the best situation for assessing the effects of different levels of use, because the widest range of levels of use will result. Depending on location, use will be both higher (at Sacate) and lower (the western boundary of the Ranch) than would occur for the other alternatives. This area of lowest use will be a valuable control for comparative purposes. This alternative also provides the best situation for detecting impacts at prime resource areas as quickly as possible. Because we know that the effects will originate at Sacate, we know that the marine mammal haulout and creek mouth wetland at Drakes and the prime rocky intertidal sites at Alegria will be the

first rich resource areas that potentially could be affected. Accordingly, monitoring efforts could be concentrated at those places to insure quickest detection of effects. This option is not available for the other alternatives. Alternatives 2 and 3 require dispersing the monitoring efforts among more sites and perhaps going outside the Ranch to include a low use area as a control. The latter should be done in any case but may not be possible (see above).

Summary of Recommendations

From the point of view of protecting sensitive resources, data do not exist to set a "safe" level for the "Access Program" at the Hollister Ranch. That must be determined by use of a monitoring program. We offer two options for establishing that level through a monitoring program.

Option 1. Initiate the monitoring program at least one year in advance of allowing first public access through Ranch lands.

In the second year limit access via the "Access Program" to 100 persons per day in winter (10 October to 19 May) and 200 persons per day in summer (20 May to 9 October). Adjust the quota after reviewing the results of the first two years of the monitoring program (one year without and one year with public access through Ranch lands).

Limit entry via the "Access Program" to Sacate.

Concentrate monitoring efforts in the prime natural resource areas closest to Sacate (the marine mammal haulout and the creek mouth wetland at Drakes; the prime rocky intertidal areas at Alegria). Locate the rest of the monitoring program to encompass as wide a range as possible of intensities of beach use by people.

Option 2. Allow access immediately at three sites encompassing a wide range of sensitivities (San Augustine, Sacate and Agua Caliente). In the first year limit access via the "Access Program" to 100 persons per day in winter (10 October to 19 May) and 200 persons per day in summer (20 May to 9 October).

Monitor all six sites plus a low use, outside control area that will not be affected by the "Access Program" or other changes at the Hollister Ranch to determine impacts of current access and the added impacts of the "Access Program."

Adjust the quota or the locations of vertical access after reviewing the first year of the monitoring program (comparing an unchanged low use area, three sites where the existing pattern of access is maintained and three sites where added public use is provided via the "Access Program").

Option 1 will provide better protection for prime resource areas while the "Access Program" is being evaluated. It is preferred by two members of the Environmental Assessment Panel. Option 2 will provide a quicker evaluation of the effects of the "Access Program" including discrimination between effects of current use and the additive effects of increased public use; however, it is more dependent than Option 1 on finding a low use control area outside the Hollister Ranch. Option 2 is preferred by one member of the Environmental Assessment Panel.

Acknowledgments

This analysis could not have performed without information supplied by the staffs of Bureau of Land Management, Pacific OCS Office; National Oceanic and Atmospheric Administration, Hazardous Materials Response Project; California Coastal Commission; Santa Barbara Museum of Natural History. We also thank P. Collins, J. Devinny, G. Hunt, M. Littler, C. Peterson, W. Sousa, J. Zedler and the Behavioral Ecology Seminar at UCSB for information and comments.

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Table 1. Relationship of the location of proposed access points to sensitive resources of the Hollister Ranch Beach

	Rocky Intertidal												
	Distance to nearest rocky area (feet)					Length of rocky shore within 5000 feet					Distance (feet) to nearest		
	East		West			East		West					
	High	Low	High	Low	Aver-age	High	Low	High	Low	Aver-age	Haulout	Birds	Wet-land
Access #1 Agua Caliente	0	0	0	0	0	5000	5000	5000	5000	5000	>5000	1600*	800
Access #2 Alegria	0	0	900	900	450	5000	5000	2100	3000	3775	>5000	?	400
Access #3 Sacate	4300	0	2600	1200	2025	700	5000	1000	3100	2450	4000	?	>5000
Access #4 Drakes	600	0	>5000	800	>1600	1000	3800	0	2300	1525	0	?	200**
Access #5 Bulito Creek	>5000	>5000	800	800	>2900	0	0	1000	2000	750	>5000	?	200
Access #6 San Augustine	4000	1000	>5000	400	>2600	1000	4000	0	4600	2400	>5000	?	4800

*cormorants roosting on cliff above caves, personal observation 17 August 1981

**anadromous fish stream on LCP Environmentally Sensitive Habitat Areas Maps

Table 2. Attendance of selected State Beaches in Southern California from July 1976 to June 1981. A. Santa Barbara County beaches. B. More southerly beaches.

	1976-7	1977-8	1978-9	1979-80	1980-1
A.					
Carpinteria	444,073	365,373	387,705	373,651	407,702
El Capitan	254,930	281,325	296,274	327,141	343,640
Refugio	213,991	176,148	200,176	180,048	193,995
Gaviota	210,823	187,088	192,206	180,652	160,352
B.					
Bolsa Chica	1,199,770	1,977,662	1,883,151	2,239,278	3,049,800
Huntington	1,920,162	2,450,397	2,642,190	2,293,380	2,284,051
San Buenaventura	900,787	1,281,343	969,798	970,209	1,470,345

Figure 1, east. Maps of the Hollister Ranch shoreline. Access points are labeled at the top. Arrows arrayed vertically point at the same access points on the different maps. Top. Proposed facilities of the Access Program, from California Coastal Commission (1981), Exhibit 5. Middle: environmentally sensitive habitat areas, from Santa Barbara County (1981), Maps 6,7,8. Bottom: rocky shore areas and dominant species, from Littler and Littler (1980), Maps 35,36,37.

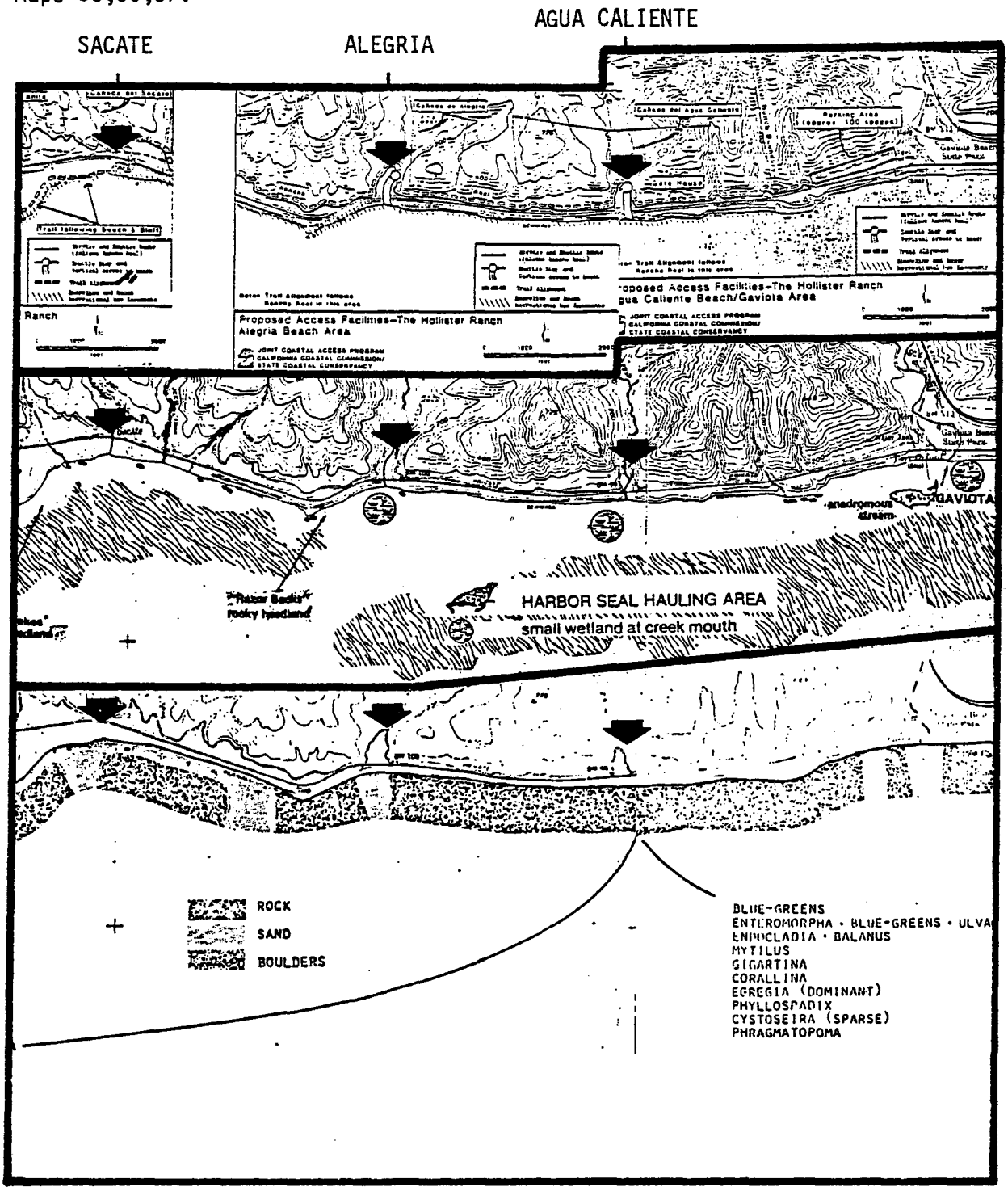


Figure 1, west. Maps of the Hollister Ranch shoreline. Access points are labeled at the top. Arrows arrayed vertically point at the same access points on the different maps. Top. Proposed facilities of the Access Program, from California Coastal Commission (1981), Exhibit 5. Middle: environmentally sensitive habitat areas, from Santa Barbara County (1981), Maps 6,7,8. Bottom: rocky shore areas and dominant species, from Littler and Littler (1980), Maps 35,36,37.

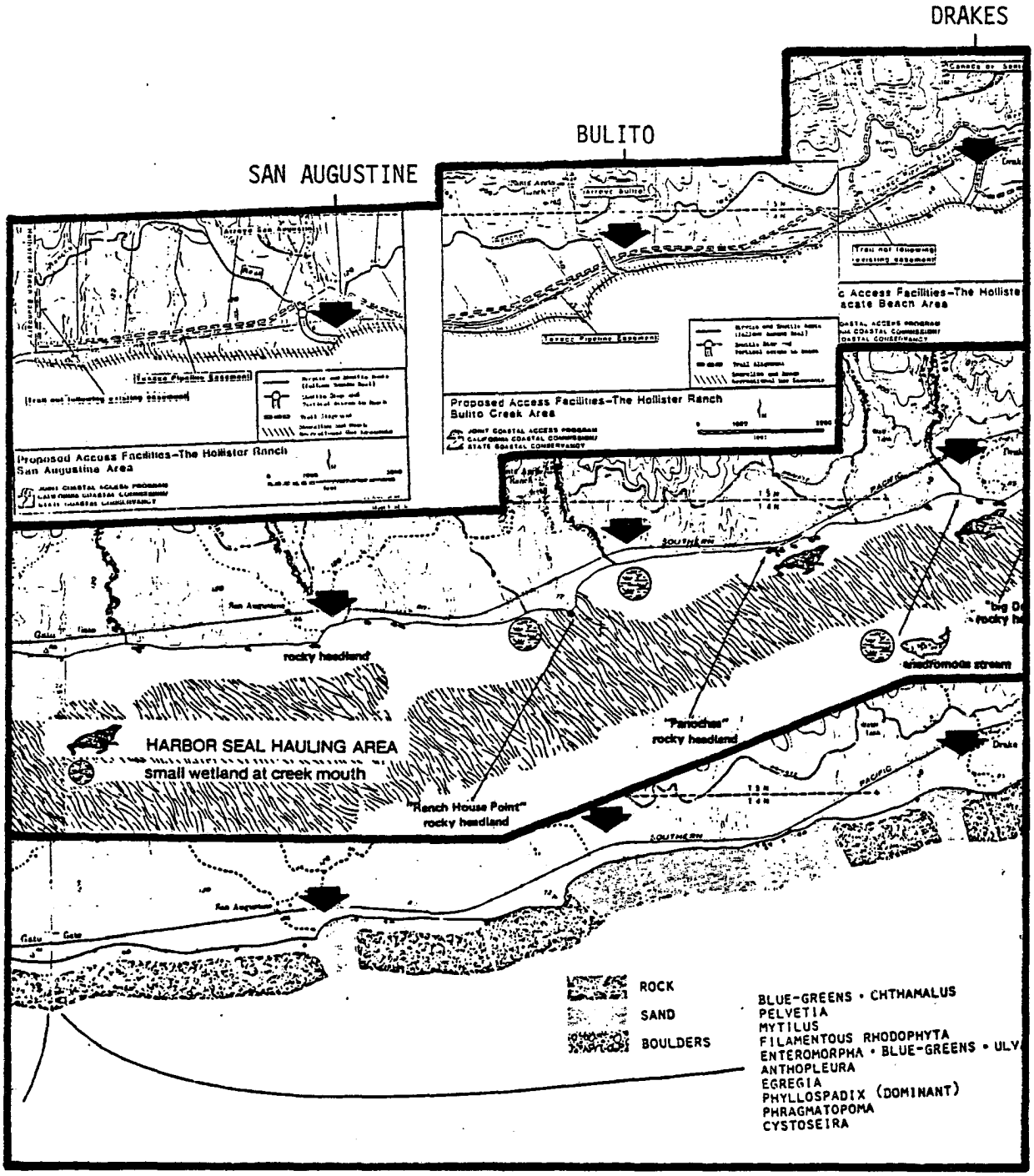


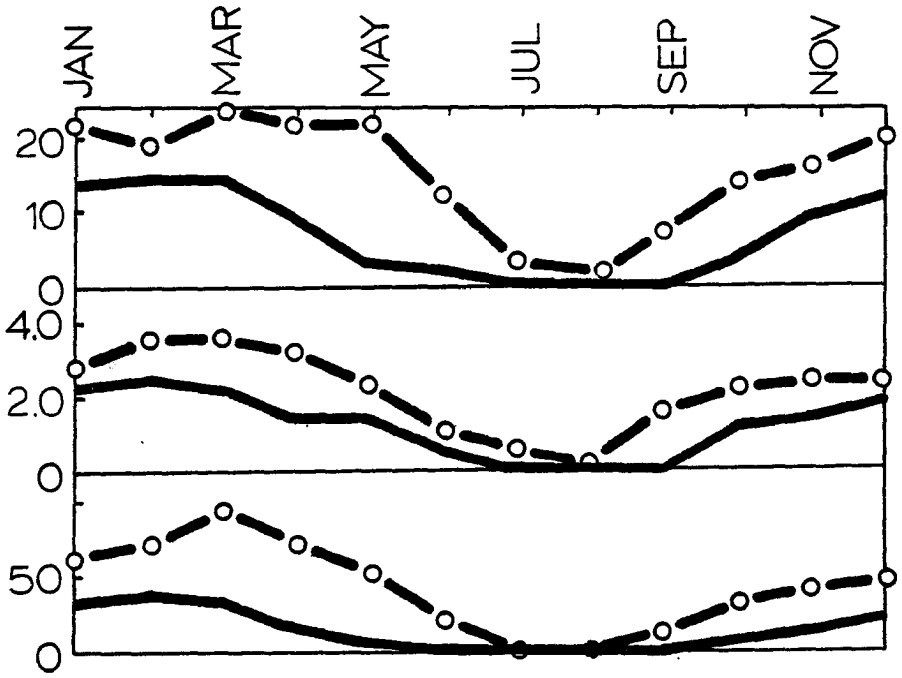
Figure 2. A. Tidal exposure in different months. B. Beach use in different months, 5-year averages.

A.

Number of days in a month with tides below +1 ft MLLW 0 ft MLLW between 9 am and sunset

Average number of hours below +1 ft MLLW 0 ft MLLW between 9 am and sunset

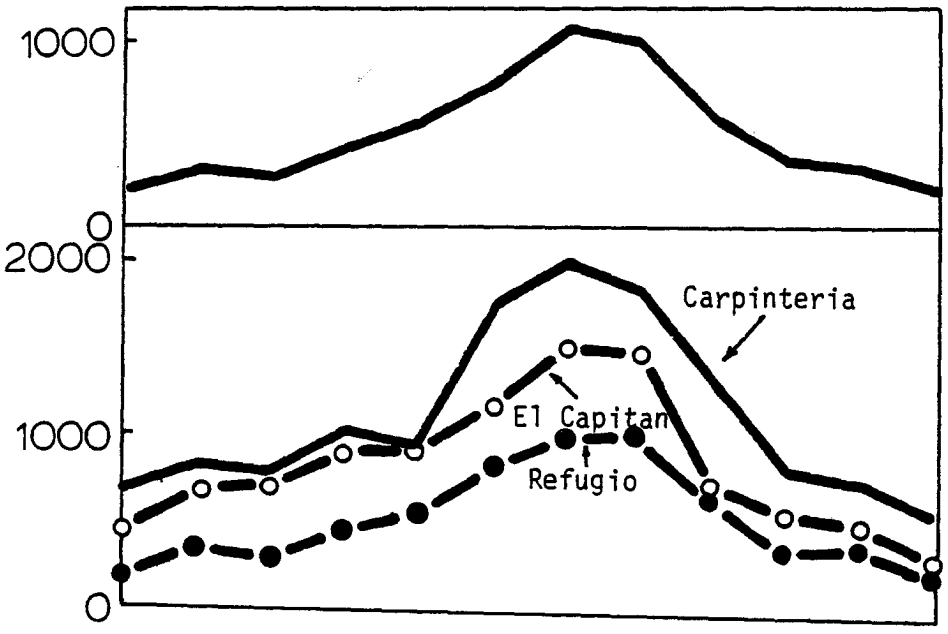
Total hours in a month when tides are below +1 ft MLLW 0 ft MLLW between 9 am and sunset



B.

Average number of visitors per day to Gaviota State Park. 5-year average. 1976-1981

Average number of visitors per day to state beaches in Santa Barbara County. 5-year average. 1976-1981



Hollister Ranch Survey - 11 November 1981

Bud Laurent, Marine Resources Region,
California Department of Fish and Game, Morro Bay

SITE: AGUA CALIENTE ACCESS POINT

TIME: 1330

PHOTOS: B/W #1 & #2 (looking west)
B/W #3 (south) } Taken about 1/4 mile north of Agua Caliente Creek

OBSERVATIONS: Intertial area is 70-80% medium to fine grain sand. The remaining portions are rocky areas generally composed of scattered boulders and outcroppings in the upper zones (largest rocks are about 6' long by 3½' high), and a fairly contiguous siltstone geosynclinous (?) reef in the lower zones. Some smaller areas have low profile basement (dark shale) siltstone (1"-3" above sand). The area apparently receives much scouring as evidenced by a rather low diversity of plants and animals. Offshore areas contribute drift algae to onshore energy flow (important base of support for amphipods which, in turn, support shore birds).

I found no evidence of 'significant' abalone or bivalve (other than mussels) populations, but did find casts of lobster and red rock crab on beach.

Marine species found:

Floral: Ulva sp., Corallina yancouverensis, Ceramium sp., Nemalion lubricum, Gigartina leptorhynchus, Gigartina canaliculata, Gastroclonium coulteri, Pterochondria woodii, Codium fragile, Rhodoglossum affine.

Faunal: (Invertebrates). Anthopleura elegantissima, Balanus glandula, Collisella digitalis, Collisella scabra, Collisella ochracea, Mytilus californianus, Phragmatopoma californica, Pollicipes polymerus, Lottia gigantea, Nuttallina californica, Pagurus sp.

EXHIBIT 1

(in Olivella shells), Aplidium sp., Mopalia sp., Tetraclita squamosa rubescens.

(Birds). No birds observed.

Area visited: From Agua Caliente Creek to ~½ mile west of creek.

Miscellaneous: Drift algae observed: Macrocystis pyrifera, Cystoseira osmundacea, Pterygophora californica, Egregia laevigata, plus various fleshy red algae.

SITE: ALEGRIA ACCESS POINT

TIME: 1430

PHOTOS: B/W #4 (looking east)

B/W #5 (looking west)

OBSERVATIONS: Intertidal area is 90-95% contiguous dark shale (siltstone) reef. Profile, or substrate relief, is fairly low (1-2') throughout the upper, middle and low zones, but a vein of 2-5' pinnacles occurs over most of the length of this area at upper margin of Phyllospadix (surf grass) zone. These pinnacles become more pronounced beyond 0.3 miles westward of creek access point. There is some faulting in the basement rock which creates channels and deeper pools (1-3' deep) in mid-and low zones. Sand overlays basement rock in much of low zone where Phyllospadix occurs.

Marine species found:

Floral: Macrocystis integrifolia (?), Egregia laevigata, Corallina vancouverensis, Gigartina leptorhynchus, Laurencia sp., Ulva sp., Pterochondria woodii, Gastroclonium coulteri, Gigartina canaliculata, Phyllospadix torreyi.

Faunal: (Invertebrates). Anthopleura elegantissima, Balanus glandula, Tegula funebralis, Collisella scabra, Collisella digitalis,

EXHIBIT 1

Fissurella volcana, Tetraclita squamosa rubescens, Nuttallina californica, Mopalia sp., Pugettia richii, Lacuna marmarota, Mytilus californianus, Pollicipes polymerus, Lottia gigantea.

(Birds). Western gull, Willet, Marbled Godwit, Black Turnstone.

Area visited: From Alegria access point to ~ 3/4 mile west of access point.

SITE: SACATE CREEK ACCESS POINT

TIME: 1530

PHOTOS: B/W #6 (looking east)

B/W #7 (looking west)

Color #1 (looking south)

OBSERVATIONS: Intertidal area is mostly (~90%) a broad (100-200' at lowtide), gently sloping sand beach. There are some low profile rocky areas in western section of this strand; plant and animal assemblage fairly similar to Agua Caliente area, except that Phyllospadix much more abundant at Sacate. Many ripped-up Macrocystis plants, victims of first winter storms, littered southern portion of area visited.

Marine species found:

Floral: Egregia laevigata (forming fairly extensive beds, the bases of which were covered by about 6" of sand), Phyllospadix torreyi, (Red algae present but omitted from notes).

Faunal: (Invertebrates). Anthopleura elegantissima, Mytilus californianus, Tetraclita squamosa rubescens, Pagurus sp. (In Olivella, Ocenebra and Amphissa shells), Nuttallina californica, Collisella spp., Lottia gigantea.

(Birds). Western gulls, Willet, Great blue heron, Whimbrel, Black turnstone, Black-bellied plover.

EXHIBIT 1

Area visited: From Sacate Creek access point to Drake's Beach access point (about 3/4 mile).

SITE: DRAKE'S BEACH

TIME: 1610

PHOTOS: Color #2 (looking west)

OBSERVATIONS: Intertidal area is largely (>95%) a sand beach, although a 2-3' profile broken siltstone reef, running about 200 meters, is scattered in lower zone about 1/4 mile westward from access point. A creek (Santa Anita?) was flowing across the beach.

Marine species found:

Floral: Phyllospadix torreyi. (Some red algae present but omitted from notes).

Faunal: (Invertebrates). Pisaster ochraceus, Anthopleura elegantissima, Acmaeidae (family), Mytilus californianus, Dodecaceria fewkessii, Tetraclita squamosa rubescens, Cancer antennarius (, soft-shelled, berried).

(Birds). Snowy plover, Willet, Western gull, Brown pelican, Great blue heron.

SITE: BULITO ACCESS POINT

TIME: 1650

PHOTOS: Color #3 (looking west)

OBSERVATIONS: The intertidal area is a predominant (>90%) sand beach - about 150' wide on an average. Some rocky substrate (low profile bench and scattered small boulders) occurred at the small "headland" about 1/4 mile from access point.

EXHIBIT 1

A second flat rocky reef was noted about one mile from the access point, more extensive and contiguous than the first rocky area, with some "channeling", but very abraded by sand scour. The largest assemblage of resting birds seen during the day was observed at the first rocky area; about 100+ gulls (mostly Western gulls) and 20+ Brown pelicans were noted. Cast-ashore Macrocystis plants were numerous and spread fairly evenly over the entire beach area visited. Broken shells of boring clams (piddocks), probably cast up from nearshore subtidal areas, were also commonly observed.

Marine species found:

Floral: Several (3-4) unidentified species of filamentous red algae, Scytosiphon lomentaria

Faunal: (Invertebrates). Present, but not noted in dwindling light.

(Birds). Willet, Brown pelican, Western gull, Marbled godwit, Great glue heron, Dunlin

Micellaneous: Also noted legal-sized (≥7") red abalone shells cast up on beach, mostly broken, in addition to several lobster molts.

Additional Information

On the following day, 12 November, I, with Chris Onuf and Eric Hochberg, toured the remaining access point and beach, San Augustine. We walked approximately 1.5 miles westward to collect general impressions of the area. I made no species list on this visit, but noted that the area generally resembled the Drake's Beach area. It is a broad (~200' wide), linear sand beach with fairly extensive low profile shale in the lower intertidal. Dominant plant form was Phyllospadix on these low reefs, although some areas supported sparse amounts of filamentous red algae.

EXHIBIT 1

General Impressions

This area of coast appears to be very dynamic in terms of the physical forces which affect it. There are three main types of habitat available for intertidal organisms: sand (which predominates), flat shale reefs in the lower intertidal, and emergent boulders and reef pinnacles scattered in the low and mid-intertidal zones. As evidenced by the sea state during my visit and the numbers of surfers enjoying it, the area receives a great deal of wave energy due to its exposure to the east of Pt. Conception. This wave energy obviously causes a high rate of sand transport, on a daily and seasonal basis. The result is a high degree of scouring of the flat shale surfaces and along interfaces of the boulders and pinnacles. This is reflected in what I would consider a low diversity of intertidal plants and animals; relatively few forms tolerate conditions encountered along Hollister Ranch beaches. In particular, large predators such as certain seastars and crabs were not commonly observed in this area. Although the area has been deemed biologically "rich", it does not fit my perception of "richness". However, my assessment should be tempered with an explanation that my perception is largely based upon Central and Northern California intertidal experience; the Hollister Ranch area may be "rich" indeed, compared to most Southern California locales. I am certain, however, that there is little sport utilization potential in this area, beyond the limited taking of mussels and smaller "tidepool" organisms, such as turban snails, for which there is permissible take.

Although some of the sites had been identified as marine mammal haul-out areas, I observed no seals or sea lions in any of the areas visited. Quite likely, this is a variable phenomenon. In line with this variability, from conversations with residents and others more familiar with this area, the intertidal area varied throughout the year - particularly as a result of winter storms which remove much of the beach sand and expose the basement rock. Because of

this, and other variables, I would recommend additional visits through the year to gain a more complete picture of potential impact by increased numbers of visitors.

In general, I agree with the estimate of sensitivity to human presence made by Chris Onuf in his preliminary report to the Coastal Commission. Those areas with the most sand and least rock should be better able to tolerate greater numbers of visitors than have historically used the area. I would like to see, however, a more complete (but not necessarily expensive) baseline against which to compare future impact(s).

HOLLISTER RANCH OWNERS' ASSOCIATION, Box 1000 — Santa Anita, Gaviota, California 93117 (805) 968-1573

November 14, 1981

Christopher P. Onuf
Marine Science Institute
University of California
Santa Barbara, California 93106

Dear Dr. Onuf:

Jeff Kruthers and I appreciated the opportunity to meet with you, Dr. Eric Hochberg and Bud Laurent regarding your preliminary report to the California Coastal Commission on sensitive coastal resources in the Hollister Ranch area. As you requested, I am reiterating the points we raised as follows:

1. The preliminary report assumes that the number of people on the beach is a key factor concerning the impact people will have. We suggest that the awareness level of those people on the beach is even more important than the numbers, and that any persons on the beach must be made aware of the sensitive resources that exist there.

   For example, a dozen aware persons may have little or no impact on the tidepools at Alegria, whereas one or two unaware persons could inflict major destruction there. It has also been the Ranch's experience in recent years that those who pay for the protection of these resources have a high degree of awareness, whereas those who go free (namely, some guests) possess a considerable degree of unawareness. It would be reasonable to expect the same result from a significant portion of the general public.

2. The emphasis of the preliminary report appears to be on the rocky intertidal areas at low tide. However, almost totally disregarded are the bird populations that use the beach at all tides and at all times of the year. It is recognized that more emphasis is anticipated in the final report on the bird populations, but we wish to point out that it is the bird populations that help to make the Hollister Ranch shoreline unique and that they require preservation and protection.

3. It should be noted that the present condition of the Hollister Ranch shoreline is the product of a certain level of use and supervision over the past 20 years. We presently exercise a high degree of supervision over the beach area, not only through the Ranch staff but also through the cooperation and initiative of many concerned owners who are quick to report or correct improper conditions in the beach area. We hardly could exercise the same degree of supervision over members of the general public, but it is mandatory that somebody does it if the shoreline is to continue in its present condition.

EXHIBIT 2

4. While your ranking of the access points is somewhat in line with our observations and experience, it should be noted that the bay at Sacate is one of the major (if not the major) feeding location of the shore bird population at Hollister Ranch at all all times of the year. Moreover, the Santa Anita Creek mouth at Drake's undoubtedly is the richest estuary for the many types of resident and migratory bird populations on the Ranch.

   Another factor that should be considered in your ranking of access points is that the Sacate area already faces a huge impact from the nearby YMCA project. The potential there is for 150 campers per day, an additional 50 staff members per day and 50 members of the public per day. While the Conditional Use Permit issued by the Santa Barbara County Planning Department limits YMCA use of the beach to 50 persons at one time, the 50 members of the public raises that total to 100 persons at one time, and there is nothing to prevent the full YMCA daily total of 200 from using the beach on a daily basis through rotating shifts.

   If Sacate beach already is burdened with 250 persons per day, it hardly is a desirable access point for still more people unless the Coastal Commission simply wants to destroy sea life and bird populations in that area.

5. Your preliminary report attempts to project usage of the Hollister Ranch beach based on usage at other state beaches, and suggests that use would be highest during the summer months when damage to sea life would be least. We believe that to be an incorrect projection because, unlike other state beaches, the most likely uses of the Hollister Ranch beach would be:

   a. Surfing
   b. Nude bathing and all that goes with it, because of the seclusion offered
   c. Exploration of tidepools, including their desecration

   The first and third are decidedly winter season activities (when intertidal areas are most susceptible to damage), and the second is hardly an activity that requires access to Hollister Ranch beaches. The high level of winter use was demonstrated by what you saw on November 11 and 12 and by the many surf and diving boats that were present offshore.

   In addition, your suggestion that weekday use of the beach might be limited also is questionable. If the surf is high, as it was on November 11 and 12, even weekday usage will be extremely high.

6. The build-out approach to determining a number of persons to put on the beach is totally inaccurate. Entrance to Hollister Ranch is now limited to 12 persons per parcel, including owners, for a total potential of 1,620 persons -- not the 3,240 inaccurately reported in the Coastal Commission's August 18, 1981, report. Moreover, actual entries to the Ranch are far fewer than the maximum potential, and only a small percentage of the actual entries go to the beach.

EXHIBIT 2

While we do not care to divulge actual figures, for obvious legal reasons, you certainly could conclude from your visits of November 11 and 12 that less than five per cent of the maximum potential of 1,620 Ranch visitors were on the beach.

7. It also is important to note that the Hollister Ranch once allowed 20 persons per parcel on the Ranch, but then voluntarily reduced that number to 12 persons per parcel to limit the impact on mainland and beach resources. Moreover, the Ranch this month adopted a new rule requiring all surfing guests to be escorted by owners while in the beach area because of vandalism, thefts and damage to resources that was being caused by unescorted guests. Such voluntary protection of natural resources no doubt would continue in the future as the need is demonstrated.

8. Your preliminary report suggests a desire to keep people off the beach at lower tides to protect the natural environment. However, it should be noted that at high tide there is little or no beach in many areas at the Hollister Ranch, and consequently little room for beach recreation.

9. In response to your query on how many public members we believe should be allowed on the Hollister Ranch if a number must be selected, my answer is "as many as the State is willing to supervise in the identical manner that the Hollister Ranch supervises its owners and guests." If the State is unwilling or unable to provide that level of supervision, any level of unsupervised use will simply lead to the destruction of tidepool and bird life as they now exist along this short section of the California coastline.

In summary, we believe that the shoreline at the Hollister Ranch is a unique natural resource that should be preserved and protected as it has been for the past two decades. We do not agree with the Coastal Commission's apparent approach that we will see what damage is done in the future, and then perhaps talk about some protection. The time to protect this shoreline is before the damage is done because it won't be accomplished later when the tidepool life and bird populations are gone.

Our Association also requested that Lana Rose, of the Life Science Department at Santa Barbara City College, respond to your preliminary report, but she was out of town last week on a field trip. If she has additional written comments, we will forward them to you promptly.

Please call on us if there are any additional questions on which we can be of assistance.

Sincerely,

Al Remmenga

ALVIN J. REMMENGA
Ranch Manager

EXHIBIT 2

November 19, 1981

Dr. Chris Onuf
Marine Science Institute
University of California
Santa Barbara CA 93106

Dear Dr. Onuf,

I have been requested to review your Preliminary Report to the California Coastal Commission on "Sensitive Coastal Resources Related to Public Access of the Hollister Ranch." Below you will find my comments relative to that document.

1. I must question the statement that "the more human activity in an area the greater will be the alteration of living resources." Strictly speaking this may be true, but if we look at our world microbiotically we humans - in clear conscience - would have a hard time going anywhere. I think all of us are looking for a realistically workable compromise for beach use at the Hollister Ranch. Certainly it must be taken into account the degree of sensibility and sensitivity exercised by people individually will be ultimately more important than numbers. All it takes is one fool to destroy decades of community balance; whereas small groups of *careful* persons could, under supervision observe and enjoy with minimal damage.

2. Your assumption about the richest and most sensitive areas being at lower levels of the beach is, according to my observations over the past six years, not necessarily true. Particularly at Alegria the two large rock outcroppings at the mid tide (and which actually represent an upper tidal assemblage) are, in my opinion, one of the most sensitive areas on the Ranch. Many of the upper intertidals are very rich. The rocks at Alegria support old and large *Lottia gigantea* which are found nowhere else on the Ranch in the same conditions. One "subsistence food gatherer", whether ehnic or not, can wipe out 50-70 years of peaceful growth for each of these *Lottias*. In fact, these limpets used to occur in quantity at the upper reaches of the uplifted shale beds at Drakes beach, but in the past two years they have all but disappeared.

3. I agree totally with your recommendations in rating the sensitivity of the access beaches and in requesting no unsupervised public access at Agua Caliente and Alegria. I would also fully consider adding Drakes to the list of supervised-only locations. Not only is the wetland so valuable, but there's a pretty wonderful intertidal underledge community there also.

4. I agree that the lack of exposure during summer tides help to protect the areas in question, but typically toward the end of summer and early fall there are several late afternoon low tides which make the lower reaches of the intertidal vulnerable to poachers and stompers. (This last year was unusual in that regard, since there were very few daylight low tides.) However, the winter use would, in my opinion, increase if public access is granted. This being not only from the surfing community, but from the educational community. Because of the Ranch's midway location between Lompoc/Buellton and Santa Barbara/ Goleta, I envision troops of students scurrying over exposed tidal

EXHIBIT 3

flats. Unfortunately I cannot feel secure that teachers of these classes will necessarily constitute adequate, aware supervision. I feel that a good deal of coastal degradation was accomplished by just this type of field trip activity.

5. YES PLEASE go for broke on a monitoring access program!! It has always been my position that no public access should be granted until a thorough baseline study was accomplished. Not a two month "quickie" for expedient decisions, but a year long inventory of not only the intertidal but also the interstitial sand communities. There are *INCREDIBLY* large populations of *Emerita, Orchestia* and *Orchestoidea* in the sand at certain times of the year. This fact, along with the obvious privacy, probably contributes to the large bird populations that the Ranch boasts. Treatment of the bird question would certainly benefit from a year's cycle of study.

6. It is unfortunate that you do not have the Ranch's owner/visitor use figures, but I agree that a fair proportion would be an incremental one. The build-out figures of 3000+ are not accurate and it is a shame they were used to begin with. But in the final analysis we should be concerned with resources first, then the numbers. The key concept here, I believe, is *supervision*. Everything is to be gained from small numbers in the beginning. It is much easier, and safer, to add people if studies indicate, rather than delete after damage is done. It seems to be totally the wrong approach to study the area after access, since then it is too late to do anything about problems. Once a fifty year old limpet is gone, theres nothing to be done. Period.

You are to be commended for creating an analytic framework within which honest commentary can be offered. This is a complex area with very complex problems, and there is a history of stewardship that has given us the very resources we are trying to protect. Opening up the area to full *unsupervised* public access would be, in my opinion, a serious mistake. On the other hand, the environmentally educated segments of our society are showing themselves, on the whole, to be very committed to, and responsible for, sensitive areas. Any access program should include a comprehensive educational component. We must hope that people will continue to respond to requests for careful use and that they could be taught to walk softly and carry no buckets. Collecting for any reason, other than that absolutely necessary for baseline studies, must be prohibited, and stringent checks should be part of any beach use program.

Finally, my bottom line is this: if it comes down to "everybody on all beaches" versus "nobody on some beaches" I would be content to never set foot on Alegria or Agua Caliente beach again. The protection of those areas are far and away the top priority. I'd love to be able to continue to share the Ranch with my students, but if it's us or the *Lottia*, those limpets win feet down!!

Best of luck and please call on me if I can be of any help at all.

Sincerely,

Lana Rose
Marine Naturalist
Instructor, Continuing Education
Santa Barbara City College

EXHIBIT 3

State of California

The Resources Agency

Memorandum

To : James Johnson
California Coastal Commission

Date : February 22, 1982

From : **Department of Fish and Game**

Subject: Hollister Ranch Environmental Assessment Report

My purposes in writing this memo are to clarify some points in the Environmental Assessment Panel report, to explain my reasons for selecting Alternative 2 for public access, and to present some additional thoughts which have occurred to me since the report was submitted to you.

I apologize to the Commission and to the other two members of the panel for the lateness of my remarks. The heavy meeting schedule of the Commission coupled with my assignment to a Committee within the Fish and Game to examine critically our Department's priorities in light of increasing budget restrictions have caused me to set aside many tasks during the last two months. Because of the delay, I know my comments may be construed as after-the-fact or "late hits"; with that risk in mind, however, I felt obligated to present the following thoughts for your consideration.

"Richness" of Marine Resources

The author's use of "rich" or "richness" could be misleading to readers of the report. Sometimes they are used to mean abundance and variety of organisms (e.g. on pg. 5) and sometimes to mean percent of an area occupied by rocky intertidal habitat. The following sentence on page 6 illustrates the problem that this can present:

> "Although poor in rocky intertidal habitats on a statewide basis (Exhibit 1), the Hollister Ranch shoreline is rich in rocky intertidal areas compared to the mainland shore of the rest of Southern California."

The "richness" or "poorness" referred to in Exhibit 1 is related to abundance and variety of organisms and the comparison of the area to the rest of southern California is based upon how much rocky area is present. The bottom line is that percent rocky areas is not necessarily equivalent to the numbers and types of organisms present. Two areas with an identical percentage of rocky intertidal areas can differ greatly in the assemblage of flora and fauna due to differences in relief, type of substrate (e.g. boulders- and their size-, sandstone, shale), exposure, whether they are covered or not with sand on a periodic basis, etc. I believe the evidence indicates that although there is some rocky intertidal habitat present on Hollister Ranch, that the abundance and variety of organisms are not high.

EXHIBIT 4

The reference in the quote above to Exhibit 1 needs further clarification. What Mr. Laurent said in Exhibit 1 is that based upon his experience in central and northern California the rocky intertidal areas in Hollister Ranch appear poor, but that compared to other southern California areas the Hollister Ranch area "may be" rich; his lack of experience in southern California does not allow him to make the latter comparison, however. Subsequently, I have spoken to two biologists in Fish and Game who were able to make the comparison based upon their experience; they both rated Hollister Ranch fairly low on the scale.

It must be clearly understood, however, that my conclusion that the Hollister Ranch area appears to have a relatively low level of intertidal organisms does not equate to a conclusion that the areas are not significant. Because of their relatively undisturbed state (a rarity in California), they are very significant and deserving of protection.

Access Alternatives

I have two problems with Alternative 1 (restrict all public access to Sacate in the first year so that the impacts of public use can be measured there). First, it has been the Department's experience that because of environmental factors there can be significant annual changes in the types and variety of marine organisms which may bear little relationship to factors being measured (e.g., harvest levels, public uses of the area, etc.). Second, because Sacate is one of the areas with the lowest levels of organisms it will be extremely difficult to measure and quantify any changes that may occur from one year to the next.

I prefer Alternative 2 because it offers the opportunity to assess changes that may occur related to access in areas containing the range of sensitivity found in Hollister Ranch. I would prefer to modify this alternative slightly, however, to allow access at Agua Caliente (high sensitivity), Bulito (medium), and Sacate (low). The other three access points (Alegria, Drakes, and San Augustine) would be control areas with high, medium, and low sensitivity, respectively. A control site located outside of Hollister Ranch should also be established and monitored.

Additional Ideas for Consideration

1. Perhaps the type and levels of public use at any access site could be related to the sensitivity of the site. For example, surfing, swimming, sunbathing, scuba diving and scientific uses have the potential for having little impact on rocky intertidal habitat. Surf fisherman or shore pickers could have significant impacts because of bait gathering and actual harvest of invertebrates, respectively. The former uses could be allowed at more sensitive locations and the latter uses at less sensitive areas.

2. Areas open to public use could be rotated. In any one year two or three of the six access points could be opened to the public, the next year they could be closed to the public and other areas opened. This would allow used areas to recover if necessary. This approach has been used successfully in managing sections of beaches for harvesting of clams, and it is being considered for managing the harvest of rockfish on reefs.

Timothy C. Farley

Timothy C. Farley, Chief
Planning Branch

cc: Peter Douglas
Dr. Chris Onuf
Dr. Eric Hochberg

EXHIBIT 4