



SAN MATEO COUNTY FARM BUREAU

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7/07/2004

Craig J. Wilson
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Division of Water Quality
State Water Resources Control Board
P.O. Box 100
Sacramento, Ca 95812-0100

Re; Pescadero Creek Watershed
San Mateo County, Ca.
Region 2 RWQCB
CAR ID 202.40013
San Francisco Coastal South

Mr. Wilson,

Pescadero Creek was listed as an impaired waterbody during the 1998 TMDL listing cycle. The State and Parent Impairment noted was Sediment/Siltation with the noted potential sources of impairment being "Non Point Sources".

It is our understanding that the primary issue driving the sediment TMDL in this stream is the implied degradation of anadromous fish habitat caused by historic and present day land uses. (Fisheries habitat degradation is listed in the Assessment Comments included).

It is our understanding that the 1998 cycle of listings for Sediment were based on a *consensus opinion* of physical scientists and biologists who had worked in the watershed. However, it was also noted at that time that an interdisciplinary watershed assessment (lacking in the Pescadero Creek watershed) was needed to identify the mechanisms and actual impacts of sediment on the fishery habitat. Such an assessment would lead to a better understanding of the nature of the impairment and could assist in the refinement of the TMDL problem statement or potentially confirm or reject the sediment listing.

Following the 1998 listing, the San Mateo Co. Resource Conservation District, working with local stakeholders, submitted a 319h grant to the Regional Board for such an assessment. This grant was awarded, and after several years of community outreach, consultant selection and administration change from the RCD to the Monterey Bay

National Marine Sanctuary Foundation, a science driven, multi disciplinary assessment of habitat conditions, sediment sources, mechanisms for sediment transport and history and impacts of land uses both narrative and numeric has been completed.

Please note that this assessment was developed for both Pescadero Creek and Butano Creek. Both creeks were listed during the 1998 cycle. The comments of this letter are limited to Pescadero Creek.

San Mateo County Farm Bureau was an active partner of the 319h grant. Our participation was limited to the installation of "demonstration projects" (farming practices which reduce sediment input from farming activities). We are not physical scientists but rather are stakeholders in the Pescadero community. We have taken great interest in reading the final report of the assessment.

This assessment was not conducted specifically to act as or replace the work needed for a TMDL process. It was intended to provide data concerning habitat conditions, causes of impairments to the fishery habitat, sediment sources and information regarding the balance or imbalance of sediment input and channel transport capacity. Water quality was also assessed by this assessment as well as by the year 2003 SWAMP monitoring program.

It seems clear to us as stakeholders, that there is substantial information within this assessment which would lead to the conclusion that Pescadero Creek could be delisted from the TMDL process.

I have included a copy of the assessment (on disk) together with a brief compilation of statements drawn from the report which provide insight into the nature, source and impacts of sediment on the fishery habitat of Pescadero Creek **We are requesting that the State Board consider this valuable information and delist Pescadero Creek.**

Thank-you for your consideration of this information. We look forward to your response.

Sincerely,


George Armanino
President

Excerpts from the Pescadero/Butano Watershed Assessment Final Report

CHAPTER 2

OVERVIEW

The middle of the 20th Century was the time of greatest change. During the period of 1930-1960, Highway 1 and other major roads through the watershed were built or improved; most of the coniferous forests were clearcut; farming became increasingly mechanized, and farmed land was extended up the coastal hills and into previously uncleared lowlands; (2-3)

The level of disturbance is much less now. As demonstrated in Chapter 6, the rate of erosion appears to have decreased, and stream conditions are adequate to support salmonids in much of the watershed. Nevertheless, the effects of last century's disturbances are still apparent, and current land management continues to have a lesser, but cumulatively significant, effect on stream resources. (2-3)

From the perspective of erosion and stream sedimentation, land use practices have improved in the Pescadero-Butano watershed over the past several decades. The timber harvest practices of the timber companies now active in the watershed are less intensive, and are far more sensitive to issues of erosion and water quality than their predecessors'. Farmers and ranchers in the watershed also are actively improving their soil conservation and other resource protection practices, individually and through work with the Natural Resources Conservation Service and the Farm Bureau. There is also a greater awareness of the need for erosion control during and after construction and road maintenance activities While erosion and sediment delivery resulting from past management will likely continue for some time, we may expect an overall decrease in erosion and sediment delivery to stream channels as land use practices continue to improve and as degraded lands recover both naturally and through proactive treatments. (2-19)

Pescadero Creek vs Butano Creek

Pescadero Creek maintains a moderate range of gradient until it reaches Pescadero Marsh (see Map 7-1 in Chapter 7). The elevation of the bed at the Stage Road Bridge, for example, is about 10 feet above mean sea level. By the time sediment arrives from the upper watershed at the alluvial reach of the stream, which begins around the USGS gauge, it consists primarily of small gravel, sand, and silt. Further downstream, by the time the stream enters State Park land around the end of Water Lane, the material is finer still (see Chapter 7). Pescadero Creek therefore has the ability to transport sediment – especially the fine material that it carries in its lower reaches – all the way to the ocean. (2-6)

Butano Creek, on the other hand, has a very low gradient after it emerges from its canyon, at about the Cloverdale Road bridge (2-6).

Professor Robert Curry of U.C. Santa Cruz and several of his colleagues in a 1985 study of the hydrology of Pescadero Marsh provide further evidence of the relative difference in the behavior

of Pescadero and Butano Creeks in response to the 1955 storm (Curry et al, 1985). Their analysis of core samples taken from several locations around the marsh reveal that, between 1955 and 1984, Butano Creek had deposited up to five feet of sediment in its floodplain above and within the Marsh, while Pescadero Creek had deposited only about two feet. (2-8)

Whatever the reason for channel incision, Butano Creek, because of its low gradient, small drainage area, and the natural and built constrictions in its lower channel, does not have the ability to transport all of its sediment load to its mouth, and the material is instead deposited on the floodplains during floods, and in the stream channel, at and below the Alder Patch, at other times. Pescadero Creek, by contrast, has the ability to transport its sediment load all the way to the sea, enabling it to recover quickly from major storms and to maintain a remarkably stable bed elevation over time, as shown in our bridge surveys (2-9).

Impacts from "Managed Lands"

Erosional features associated with land management account for the majority of sediment delivery volumes from the watershed: we estimate that approximately 90 percent of all sediment entering stream channels is from erosion features that are associated with some kind of human land use (see Table 6-12 in Chapter 6). In order of importance, roads, agricultural including grazing, and timber harvest land use associations account for the largest percentage of the total sediment delivery (2-12)

The area of the watershed west of the San Gregorio Fault accounts for a significant proportion of the erosion and sediment delivery documented in Chapter 6. While the bulk of this area lacks forest canopy cover and may be naturally more susceptible to erosion, it has also seen some of the most intensive land management activities, particularly cropping and grazing. Much of the erosion was initiated prior to 1956, but continues today. Most mass movements and gullying in this area occur in relatively steep hillslope areas. (2-12)

Fish Habitat

A surprisingly consistent sediment size distribution is found throughout the Pescadero Creek channel network, extending even into the steeper headwater channels with small drainage areas where coarser sediment size distributions might be expected. Hence, even in relatively small channels high in the watershed, sediment sizes on the bed are frequently suitable for spawning by salmonids. Given that even within the steeper stream reaches there are areas of relatively low channel slopes -- well within the range utilized by steelhead -- migration barriers may be a primary factor limiting the extent of available steelhead habitat. (2-12)

Later was noted; "We did not find that artificial barriers are a major impediment to the fishery in this watershed".(2-18)

In contrast, Butano Creek bed material consists of both very coarse material and very fine material, with a lower proportion of gravel between the extremes. Hence, good quality spawning habitat is more limited in Butano Creek than in Pescadero Creek. (2-13)

Recommendations: Suggested Project Types:

While eliminating all sources of controllable land management-associated sediment delivery to streams would produce the best results in terms of stream health, certain classes of erosion are

both more practical and more cost-effective to address than others. The inventory, assessment and treatment of road-related sediment delivery is perhaps the most cost-effective and immediate strategy for reducing continued anthropogenic sediment loading of stream channels. (2-19)

Many low-order stream channels have been observed to store large quantities of sediment from previous land management practices. While in most cases this sediment cannot be treated cost effectively, in some instances (particularly in high priority sub-basins) sediment may be removed or stabilized. A comprehensive inventory of lower order stream channels in high priority subbasins should be undertaken to evaluate both the conditions with regard to stored sediment and the potential for treating degraded stream channels. (2-19)

Gullies have been shown to be the most important source of controllable sediment delivery in the western part of the Pescadero-Butano watershed.The aim of gully control would be to *improve the appearance and the biological productivity of the coastal hills, and to reduce sedimentation of Pescadero Marsh and the lower courses of Pescadero and Butano Creek.*

CHAPTER 5 Re-Survey of Bridge X Sections

....the bed of Pescadero Creek has been remarkably stable over time, or perhaps more accurately stated, that the creek seems to reestablish a stable elevation quickly. This is especially remarkable given the changes in land use and the large storms that have occurred since the original surveys. Again, the exception is the lower course of Butano Creek(5-19)

CHAPTER 6 Sediment Source Investigation

Contributions from Managed Lands (Timber, Ag, Roads);

Results of this analysis are summarized in Table 6-12. The managed category is by far the largest contributor of sediment to the Pescadero-Butano stream system, accounting for over 90% of the nearly 9,000,000 yds³ of total sediment delivery during the period 1937-2002. (6-43)

In the Pescadero-Butano watershed, 1,985,000 yds³, or 22% of the total controllable sediment delivery, was associated with logging activities (Table 6-13). However, 90% of this total was related to timber harvesting practices no longer in widespread use in the basin, such as tractor clearcutting and tractor yarding in stream channels. (6-44)

Total sediment delivery associated with the ranch/agriculture land use category during the 66 years covered by the study was 2,315,000 yds³, or 26% of the total controllable delivery (Table 6-13). However, nearly 80% of the ranch/agriculture-related sediment delivery occurring in HGU 7 occurred in the pre-1956 period. This may indicate that ranching and agriculture-related land use practices have improved since that time. (6-45)

Road-related erosion is perhaps the most easily treatable type of controllable erosion. Upgrading

of stream crossings and improvement of road drainage function can dramatically reduce sediment delivery to streams. In the Pescadero-Butano watershed, road-related sediment delivery to streams totaled 3,860,000 yds³, or 43% of the total controllable sediment delivery (6-45).

Trends in annual contribution of sediment;

..... Table 6-13 reveals some patterns in the timing of sediment delivery associated with various land use categories. **The results from the timber harvest and agriculture/grazing categories are most striking. Erosion associated with timber harvest shows a marked decline in annual sediment delivery from the 1937-1956 period to the 1957-1982 period, and a further decline in the most recent period. This is likely due to several factors: the overall decline in timber harvesting in the Pescadero and Butano watersheds; a decline in the use of tractor logging; increased use of more resource-protective harvest and road practices; and vegetation recovery on previously logged lands.** (6-46)

In the agriculture and grazing category, the total volume of sediment delivered to streams was overwhelming in the earliest period, but has declined by 90% in the most recent period. (6-47)

Annual sediment delivery volumes associated with roads show only a slight decrease(6-47)

Conclusions

A review of Table 6-13 suggests that watershed-wide sediment yield rates appear to be declining over the three time frames. (6-47)

However, field observations indicate that there may be substantial quantities of sediment stored in smaller streams in timberlands previously subjected to tractor logging. Consequently, the sandstone and mixed lithology HGU's that underlie much of the forested area of the watershed may continue to produce relatively large quantities of sediment for some time. (6-49)

In general, land use practices have been steadily improving in the Pescadero-Butano watershed. Harvest practices employed by timber companies active in the watershed over the last twenty years are less intensive, and are far more sensitive to issues of erosion and water quality. Farmers and ranchers in the watershed have been working with the Natural Resources Conservation Service and the Farm Bureau to prevent erosion and improve both water quality protection measures and road maintenance practices in cultivated, rangeland and forest settings. (6-49)

While erosion and sediment delivery resulting from past management will likely continue for some time, there should be an overall decrease in sediment delivery to stream channels as land use practices continue to improve and as degraded lands recover both naturally and through proactive treatments. (6-50)

