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May 3, 2006

Song Her, Clerk to the Board
State Water Resources Control Board
1001 I Street
Sacramento, CA 95814
Email: commentletters@waterboards.ca.gov; Fax, 916 341-5620

RE: Comment Letter – Pathogens in Tomales Bay

Dear Members of the California State Water Resources Control Board:

My name is Laurence Kirsch. I am a resident of Point Reyes Station, California, the town located at the foot of Tomales Bay. I am a former President of the West Marin Chamber of Commerce, which serves the area surrounding Tomales Bay. I am also a professional economist, with an A.B. in economics from the University of California and a Ph.D. in economics from the University of Wisconsin.

As a resident of the Tomales Bay watershed who has a strong interest in the success of local agriculture, I want to see our local ranches prosper in a manner that is consistent with a healthy environment. As a professional economist who frequently deals with regulatory matters, I have an abiding concern that regulations have benefits greater than their costs. The combination of these perspectives lead me to hope that the Basin Plan for Tomales Bay will offer positive net benefits to the people of West Marin and the people of California.

Unfortunately, however, the California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB-SF), in its Resolution R2-2005-0046 dated September 21, 2005, has proposed a Basin Plan Amendment in which the costs are real while the benefits are conjectural. Regarding costs, the RWQCB-SF estimates that the compliance costs to agriculture alone will be between \$9 million and \$20 million over the next ten years.¹ Estimates of the total costs to all Tomales Bay stakeholders range as high as \$73 million.²

¹ Proposed Basin Plan Amendment, p. 10.

² See, for example, the comment of Constance Berto, Marin Horse Council, included in Exhibit LDK-1 ("Appendix A, Written Comments, Comment Letters Regarding April 20, 2005 Pathogens in Tomales Bay Watershed Total Maximum Daily Load (TMDL) Proposed Basin Plan Amendment and Staff Report").

Regarding benefits, the RWQCB-SF asserts that "In addition to protecting pathogen-impaired beneficial uses... this TMDL will also protect aquatic ecosystem beneficial uses..."³ The RWQCB-SF provides no evidence that such protections will actually be forthcoming, however. Instead, the RWQCB-SF states "If source control actions are fully implemented throughout the Watershed and the TMDL targets are not met, the Water Board may consider re-evaluating or revising the TMDL and allocations."⁴ In other words, the RWQCB-SF is quite willing to spend tens of millions of dollars of other people's money without knowing whether the required remediation actions will actually improve water quality.

The inadequate scientific support for the RWQCB-SF's position is a matter of public record. Most of the 18 comments submitted to the RWQCB-SF in April 2005 stated that the draft Basin Plan Amendment for Tomales Bay is based upon inadequate data, bad science, or both.⁵ The proposed Amendment shares these flaws.

A fundamental problem with the proposed Amendment is that the RWQCB-SF never forthrightly addresses the problem of distinguishing pathogens derived from wildlife from pathogens derived from human activities. The RWQCB-SF states that "Pathogens sources are identified based on elevated coliform bacteria levels..."⁶, but proposes no means for distinguishing among sources. Instead, the RWQCB-SF bases its conclusions about pathogen sources on belief rather than fact:

"Open space lands and the Bay contain wildlife and are therefore recognized as potential source areas. These areas are not believed to be a significant source of pathogens and their contribution is considered natural background."⁷

Contrary to RWQCB-SF assertions, however, the available evidence *does* indicate that wildlife on open space lands is in fact a significant source of pathogens in the Tomales Bay watershed. In the late 1990s, the State Water Resources Control Board funded a study of pathogens in the watershed; and the lead author was one of the Board's staff members.⁸ In this study, White Gulch served as the "freshwater control watershed"⁹ because of its lack of human impact: all pathogens in White Gulch are derived from wildlife. According to this report, funded by *your* Board and authored by *your* staff, the fecal concentration (MPN/100ml) measurements in White Gulch were as follows:¹⁰

³ Proposed Basin Plan Amendment, p. 1.

⁴ Proposed Basin Plan Amendment, p. 11.

⁵ See Exhibit LDK-1.

⁶ Proposed Basin Plan Amendment, p. 2.

⁷ Proposed Basin Plan Amendment, p. 5.

⁸ L. O'Connell, G. Langlois, and D. Hopkins, *Investigation Of Nonpoint Pollution Sources Impacting Shellfish Growing Areas In Tomales Bay, 1995-96*, State Water Resources Control Board, December 2000. This study accompanies these comments as Exhibit LDK-2.

⁹ Exhibit LDK-2, p. 129.

¹⁰ Exhibit LDK-2, Table 17, pp. 56-58.

Sample Date	Fecal Coliform (MPN)
9/12/1995	170
12/05/1995	700
12/09/1995	46
1/17/1996	130
2/11/1996	33
3/11/1996	33
3/12/1996	230

Sample Date	Fecal Coliform (MPN)
3/13/1996	34
3/18/1996	13
4/01/1996	490
4/02/1996	130
4/03/1996	79
4/08/1996	43
7/09/1996	230

From your own study, it is clear that wildlife alone violates the target coliform levels proposed by RWQCB-SF: 28% of the samples violate the proposed log mean target of 200 MPN, while 14% of the samples violate the proposed 90th percentile target of 400 MPN. What this means is that the Proposed Basin Plan Amendment targets are likely to be unattainable much of the time, even if all humans and all human activities are removed from the Tomales Bay watershed. Indeed, fully two-thirds of the comments submitted to RWQCB-SF in April 2005 stated that the targets were unattainable¹¹, to which RWQCB-SF responded by arbitrarily raising its proposed log mean targets from a completely absurd 43 MPN to a still absurd 200 MPN.¹²

As explained by Dr. Corey S. Goodman, Professor of Neurobiology at U.C. Berkeley, in his comments of April 17, 2005¹³ and again in comments submitted this week to the California State Water Resources Control Board, better science and better data are available at reasonable cost. He notes that, for a couple hundred thousand dollars, the Water Resources Control Board can conduct a Microbial Source Tracking (MST) study, also known as Bacterial Source Tracking (BST), that would enable the Board to distinguish among the pathogens of humans, cows, birds, sea lions, and so forth; and such a study would provide the information that is needed to determine the extent to which remediation measures applied to any one source could reasonably be expected to improve the water quality of Tomales Bay. The RWQCB-SF recognized that nearly half of the comments it received advocate use of MST technology¹⁴, but rejected this technology on the grounds that it is "still not fully developed and validated... [and is] expensive (costs range in the several hundreds of thousands dollars) and take[s] a considerable amount of time (a few years) to complete."¹⁵ According to the comments that Dr. Goodman is submitting to you this week, RWQCB-SF is outdated in its understanding of the technology and its costs. As an economist who has spent his career dealing with public policy questions, I am chagrined to hear a government agency regard the expenditure of a few hundred thousand dollars as

¹¹ See Exhibit LDK-1.

¹² See Exhibit LDK-3 ("Appendix D, Responses to Comments"), p. 3.

¹³ See Exhibit LDK-1.

¹⁴ Exhibit LDK-3, pp. 15-16.

¹⁵ Exhibit LDK-3, p. 16.

“expensive” while having no apparent concern for the tens of millions of dollars of costs that it intends to impose on the public.

Before the State Water Resources Control Board imposes a costly Basin Plan on the public, there needs to be a demonstration that those costs will yield significant benefits. Responsible regulation requires that such a demonstration be made. Consistent with such responsible regulation, the U.S. Environmental Protection Agency has issued *Guidelines for Reviewing TMDLs under Existing Regulations issued in 1992*, dated May 20, 2002 and attached hereto as Exhibit LDK-4. These *Guidelines* state the following:

“...the TMDL submittal should explain the linkage between the pollutant of concern and the chosen numeric water quality target... The TMDL submittal should describe the method used to establish the cause-and-effect relationship between the numeric target and the identified pollutant sources... The TMDL submittal should contain documentation supporting the TMDL analysis, including the basis for any assumptions; a discussion of strengths and weaknesses in the analytical process; and results from any water quality modeling. EPA needs this information to review the loading capacity determination, and load and wasteload allocations, which are required by regulation... [T]he TMDL should discuss the approach used to compute and allocate nonpoint source loadings, e.g., meteorological conditions and land use distribution.”¹⁶

The Proposed Basin Plan Amendment either fails to do these things or does so in a superficial manner. Therefore, as a matter of good public policy and to comply with EPA requirements, the State Water Resources Control Board should reject the Proposed Basin Plan Amendment and instruct the RWQCB-SF to promptly undertake the MST study that is necessary for establishing “the cause-and-effect relationship between the numeric target and the identified pollutant sources.” As RWQCB-SF has implicitly admitted, failure to undertake an appropriate scientific study may result in expenditure of tens of millions of dollars on remediation measures that fail to improve the water quality of Tomales Bay. We can and should do better than that.

Sincerely yours,

[signature via fax]

Dr. Laurence D. Kirsch

¹⁶ Exhibit LDK-4, pp. 2-3.

Exhibits (via email only):

- LDK-1 (“Appendix A, Written Comments, Comment Letters Regarding April 20, 2005 Pathogens in Tomales Bay Watershed Total Maximum Daily Load (TMDL) Proposed Basin Plan Amendment and Staff Report”, April 2005)
- LDK-2 (L. O’Connell, G. Langlois, and D. Hopkins, *Investigation Of Nonpoint Pollution Sources Impacting Shellfish Growing Areas In Tomales Bay, 1995-96*, State Water Resources Control Board, December 2000)
- LDK-3 (Staff of the California Regional Water Quality Control Board, San Francisco Bay Region “Appendix D, Responses to Comments”, September 2005)
- LDK-4 (U.S. Environmental Protection Agency, *Guidelines for Reviewing TMDLs under Existing Regulations issued in 1992*, May 20, 2002)