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May 7, 2012

Dr. Ralph Morgenweck  
Department of the Interior  
Scientific Integrity Officer  
134 Union Blvd.  
Lakewood, CO 80228

Subject: Response to letter from R. Morgenweck to T. St Clair dated April 19, 2012

Dear Ralph:

Attached is a letter of clarification from Dr. Chris Clark of Cornell University, documenting his current opinions regarding the Draft Environmental Impact Statement (DEIS) at Point Reyes National Seashore and the Drakes Bay Oyster Company (DBOC) operation. The gist of his response is that the new data made available by DBOC and ENVIRON during the DEIS comment period provide additional value to the impact assessment process and could usefully be included in the National Park Service's Final EIS. However Dr. Clark does mention that a full evaluation of these new data (and indeed the situation at Drakes Bay in general) would require new measurements and analysis over an extended period of time. As it stands, Dr. Clark's original opinion regarding the conclusions he drew of the current DEIS is unchanged.

In Atkins' opinion, the 'currently best available scientific information' has now been fully aired, and Dr. Clark's opinion is unchanged. If there were to be a much longer decision period, then a more detailed and comprehensive analysis could be designed and carried out. However, absent such a prolonged and potentially open-ended process, the currently available information is clear. It is also by no means certain that new research and analysis would lead to new conclusions. Hence we feel that the currently available scientific information provides a framework for decision-making.

Sincerely,

Tom St Clair  
Program Manager

**Letter from Ralph Morgenweck (DOI, Scientific Integrity Officer) to Dr. St. Clair on 19 April 2012:** This letter listed three questions addressed to me in order to “clarify his (*my*) views on the DEIS acoustic chapter so that the National Parks Service (NPS) clearly understands his (*my*) suggestions for improving it. The three questions were:

1. Please review the data provided by ENVIRON and provide your opinion as to whether the ENVIRON measurements provide sound and reasonable information regarding the acoustic environment at Drakes Bay including whether the information was collected using appropriate techniques and whether any additional information would benefit NPS in addressing the ENVIRON data in the Final EIS (e.g. measurement protocols, weather conditions, operating condition of equipment).
2. Based solely on your interpretation of the scientific information related to acoustics are there different values and/or references for acoustic measurements (other than those in the DEIS) that appear credible and should be addressed in the final EIS?
3. Does new attention on the sources of the data in Table 3.3, the ENVIRON data, or any additional or different values of references for measurements identified in response to question 2 alter your view of the DEIS chapter on acoustics? If so, what is your current assessment of the discussion of soundscapes in the DEIS?

I therefore carefully reviewed the DEIS, my comments on the DEIS, and the materials I received on 19 April, 2012. After this review I answered the three questions from Ralph Morgenweck’s 19 April 2012 letter. I have tried to make my answers strictly based on science and not include anything but my professional scientific opinions. The following are my answers to the three questions.

**Question 1.**

*Please review the data provided by ENVIRON and provide your opinion as to whether the ENVIRON measurements provide sound and reasonable information regarding the acoustic environment at Drakes Bay including whether the information was collected using appropriate techniques and whether any additional information would benefit NPS in addressing the ENVIRON data in the Final EIS (e.g. measurement protocols, weather conditions, operating condition of equipment).*

The Environ document (ED) provides some additional synthesis of measurements. Section H provided critical review of the DEIS but did not provide any data, while Appendix B provided additional noise data in the form of charts based on sound level measurements collected on 22 November 2011 using a certified B&K 2250 Type 1 SL meter.

My simple answer to this question is that the ED information does provide some “reasonable information regarding the acoustic environment at Drakes Bay,” that the data seem to have been collected “using appropriate techniques,” and that both the DEIS and this ED could benefit from additional acoustic data as well as data interpretation. These additional ED noise level (in dBA) charts provide calibrated measurements of specific DBOC events relative to a distance of 50 feet. The ED data charts represent measurements of very short snapshots of specific DBOC acoustic activity events. One could go through a litany of issues related to the physical conditions under which those measurements were taken (e.g., humidity, ground reflection) and the need for a wider variety of data analyses to better address acoustic issues of spatial and temporal and spectral variability, but relative to the tolerances under discussion here, these are important and useful charts.

Neither the DEIS or ED document provides a full evaluation of the acoustic dynamics in Drakes Bay relative to the noise generating activities of DBOC. The DEIS (Chapter 3, page 202) refers to measurements collected in the Seashore in 2009 on a bluff on the eastern shore of Drakes Estero over the course of 30 days in July/August of 2009, “at a site “located approximately 2 miles from the onshore DBOC operations.” These measurements were used to calculate L<sub>50</sub> values for that site and time period. The context of these NPS measurements and those in the ED are very different, and cannot be effectively compared.

The photographs in the appendix provided very useful visualizations of the DBOC operational contexts.

## **Question 2**

*Based solely on your interpretation of the scientific information related to acoustics are there different values and/or references for acoustic measurements (other than those in the DEIS) that appear credible and should be addressed in the final EIS?*

There are some additional DBOC noise level data that have become available since submission of the DEIS. These data were collected by ENVIRON International Corp and made available to me in their 9 December 2011 “Comments on the Drakes Bay Oyster Company Special Use Permit Environmental Impact Statement” document. These are credible data relative to the received noise levels of specific DBOC noise-generating activities at relatively close ranges. As such, they revise the noise level values as presented in the DEIS Chapter 3, Table 3.3. These are the only additional data that I am aware of, which could inform the DEIS relative to the potential influence of DBOC generated noises on the Drakes Estero soundscape.

If there were additional time and resources, the NPS and/or others could carry out additional analyses on existing data and/or conduct additional acoustic studies. Although such efforts to collect more data and conduct more analyses would likely take several more years to complete, they would provide a quantitative mechanism by which to more fully assess the acoustic influences of DBOC operations on the Drakes Estero soundscape.

## **Question 3**

*Does new attention on the sources of the data in Table 3.3, the ENVIRONS data, or any additional or different values of references for measurements identified in response to question 2 alter your view of the DEIS chapter on acoustics? If so, what is your current assessment of the discussion of soundscapes in the DEIS?*

The additional ENVIRONS’ data is appropriate and helpful in that it provides some actual noise level measurement data for specific DBOC noise-generating activities at close range. Some of those activity level values in the DEIS Table 3.3 were not representative of actual DBOC noise-generating activities.

As mentioned in my responses to question-2, above, the DEIS would benefit from a richer set of data and acoustic metrics by which to evaluate the contributions of DBOC acoustic activities on the Park’s physical soundscape. This will involve the application of a sound transmission model as a function of environmental conditions, terrain, and distance between the source and a potential visitor or wildlife. The dynamics of sound transmission are complex and site specific, and significantly influence the level and quality of sound received by a listener. As discussed in the DEIS, the subjective perception of sound by humans and wildlife is highly contextual and cannot be predicted simply by an estimate or measure of receive sound level, and there are numerous scientific publications attesting to the this subject. Therefore, relying on a richer set of empirically derived measurement data and sound transmission model is not by itself going to address the issue of a person’s subjective experience in the Park.

In conclusion, I still find the DEIS discussion regarding potential future impacts from human-caused noise-generating activities (Chapter 4) reasonable and appropriate.