

June 25, 2012

From: Dr. Corey S. Goodman

To: Dr. Ralph Morgenweck, Scientific Integrity Officer, Department of the Interior

Re: Dr. Chris Clark's re-review of the DEIS: Part 1 – the re-review is incomplete

Dr. Morgenweck,

I recently received a copy of your April 19, 2012 letter to Dr. Tom St. Clair (Program Manager, ATKINS) concerning your request to have Dr. Christopher Clark (Cornell University) re-review the "acoustics chapter" of the Draft Environmental Impact Statement (DEIS) concerning the oyster farm at Drakes Estero. I also was copied on your June 20-21 email exchange with Mr. David Weiman, Drakes Bay Oyster Company (DBOC) consultant, concerning your April 19 letter to Dr. St. Claire.

The May 7 re-review by Dr. Clark is incomplete (as defined below) and superficial (as defined in part 2). You originally commissioned the peer review, and then the re-review. Given what you described as the "*extremely high interest in the peer review*" for this DEIS, and the problems with the original ATKINS peer review of the soundscape sections, as Interior's Scientific Integrity Officer, you are expected to require the peer review process to be comprehensive and complete, not to exclude relevant data, documents, or sources, and most of all, to get it right.

Thus, I request that you expand the re-review as outlined below to include the complete soundscape sections in the DEIS (all tables, all chapters), and not just the limited questions you previously asked about one table and one chapter.

In your June 21 email to Mr. Weiman, you resisted the suggestion of any further re-review by Dr. Clark and ATKINS because, you wrote:

"... the contract with Atkins for the peer review of the DEIS is expired. Any additional time spent by Atkins and Dr. Courtney is unreimbursed. Their job was to review the DEIS and provide their report which they did, not to engage in a lengthy debate about the review ..."

You commissioned Dr. Clark's re-review because in their original peer review, ATKINS and Dr. Clark were deceived by data that misrepresented DBOC noise generators, ambient noise levels, and distances over which those sounds dissipate. You submitted the ENVIRON data to Dr. Clark, but the ENVIRON data on their own were not sufficient for a complete review. It is incumbent upon you to finish the job by providing Dr. Clark with all of the appropriate data and analysis, and asking Dr. Clark all of the relevant questions.

From your email to Mr. Weiman, you seem to use the expiration of the ATKINS contract as a justification for an incomplete peer review. NPS has spent millions of dollars on the EIS and related studies over the past few years. As you have written, there is much interest in the science in the DEIS and the peer review. Are you saying that your peer review process is being halted for budgetary reasons? Is Interior refusing to provide sufficient funding for a proper peer review? In addition to the ATKINS study, you have also recently contracted with the National Academy of Sciences (NAS) to review the DEIS and the ATKINS review and re-review. The original peer reviews was incorrect

due to misrepresentation of data, and the re-review is incomplete and superficial.

Dr. St. Claire wrote to you:

“In Atkins' opinion, the ‘currently best available scientific information’ has now been fully aired, and Dr. Clark's opinion is unchanged.”

I am puzzled at how Dr. St. Claire could make such an assertion given what was made available since March 19 when the original ATKINS report was filed. That is an incorrect statement. As described below, much of the “*currently best available scientific information*” has neither been provided to Dr. Clark, nor questions about it asked of him. Moreover, of the data and reports that were provided to him, it appears as if Dr. Clark still has not read some of them (see part 2) since he continued to misquote them just as was done in the DEIS.

I respectfully request you to expand Dr. Clark’s re-review to include:

- 1) All of the relevant soundscape chapters (2, 3, and 4), not just one chapter (3);
- 2) All of the relevant soundscape tables (including Tables 4-2, 4-3, and 4-4), not just one table (Table 3-3);
- 3) All of the relevant data and analyses (including VOLPE/FAA data, DBOC GPS data, NPS photographic data, & Goodman analysis), not just the ENVIRON report; and
- 4) All of Dr. Clark’s specific conclusions and assessments, not just his general statement that his opinion remains unchanged.

There are two issues that need clarification before outlining the questions for Dr. Clark.

First, I ask you to correct your statement about my affiliation to set the record straight with the NAS, media, and others. When you cited “*representatives of DBOC*” having had conversations with Dr. Clark, I presume that you were referring to me. If that is the case, then you have misrepresented my affiliation to Dr. St. Claire and Dr. Clark, and to anyone else who reads your letter (e.g., it is currently posted on the Greenwire web site). Even in your June 21 response to Mr. Weiman, in which he correctly points out my affiliation and you thank him for the clarification, you still nevertheless referred to me as “*interests related to DBOC.*” I ask you to stop misrepresenting my affiliation and interests.

NPS and DOI were specifically told on many occasions beginning with my written and oral testimony on May 8, 2007 to the Marin County Board of Supervisors (at their invitation, before I ever met Mr. Lunny), that I am not now, and have never been, a representative of DBOC. Marin County Supervisor Steve Kinsey asked me to get involved in this issue (as an independent scientist) on April 28, 2007. At the May 8, 2007 hearing, I testified:

“... public policy decisions can and should be informed by quality science. But this must be science conducted rigorously, without agendas or conflicts-of-interest. The political process can be dangerously misled by bad or misused science. One of my greatest concerns when I see science being invoked in public policy debates is to make sure that it is good science and not pseudo-science or -- even worse -- a blatant misuse of science.”

Those words are as true today as they were on the day of the hearing. I refer you to the

materials I sent you and Dr. Machlis on April 24, 2012 when you asked me to once again set forth my affiliation.

When I telephoned Dr. Clark on March 21, I correctly identified my affiliation and interest in this topic, whereas you have implied that I did not tell him the truth about my affiliation. My interest in this issue from the outset has been focused on scientific integrity and the proper use of science by government in public policy debates and decisions. Given your title and responsibility, I assume that you and I share a common interest in, as the President called it, the goal of “*returning science to its rightful place.*”

Would you please correct this misconception with all involved that I am not a representative of DBOC. Your April 19 letter is already posted on the internet by the news media, and is likely to become part of the public record for the National Academy of Sciences panel. Your statement, misrepresenting both my affiliation, and by inference, my history of involvement in this issue, is likely to be taken as a statement of fact, given your title. I ask you to include a public correction with whomever and wherever your April 19 letter is distributed or posted, including Greenwire, NAS, and others.

Second, I ask you to acknowledge that Dr. Clark has not in fact reviewed all of the currently available scientific information concerning the soundscape sections of the DEIS. In your June 21 email to Mr. Weiman, you supported Dr. St. Claire’s May 7 assertion that the best available scientific information had now been fully aired. That is not correct. Much of the soundscape data and analyses was not considered by Dr. Clark and the ATKINS peer review and re-review. As Scientific Integrity Officer, and the person in charge of this review process, it is time to make sure that the best available scientific information is fully aired by Dr. Clark and the ATKINS peer review.

You affirmed in your email to Mr. Weiman that it was not necessary to have Dr. Clark consider my April 24 complaint to the Inspector General, copied to you (and sent by Mr. Weiman on April 25 to Drs. St. Claire and Clark), because my complaint did not, by inference, contain relevant scientific information. This is not correct – my complaint was based upon relevant scientific information, much of it never reviewed by Dr. Clark.

I conclude from your statement that you either have not read the detailed parts of my complaint (in particular each of the six parts presenting detailed scientific analysis), or chose to ignore them (I will resend them to you by TransferBigFiles).

There is indeed a large body of scientific information – much of it apparently excluded from the DEIS and peer review – contained in my April 24 complaint. Much of this body of scientific information was developed by or for the NPS, such as the audio recordings from the VOLPE (FAA) PORE 004 microphone.

As outlined below, Dr. Clark did not consider much of this body of scientific information, or did not know about, during his initial review, and neither you or Dr. St. Claire directed Dr. Clark to include this data in his re-review. Thus, Dr. Clark’s re-review did not, in contrast to Dr. St. Claire’s statement, represent the best available scientific information – far from it.

As described in my April 24, 2012 complaint much was learned between March 26 and April 24. On March 26, my complaint focused on Chapter 3 and in particular on Table 3-3. That issue was described in part 2 of my April 24 complaint. By April 24, further data and information became available for the first time and, as a result, expanded my concerns to additional aspects and sections of the soundscape analysis in the DEIS,

including whether NPS in the DEIS had:

- (i) Followed NPS Management Policies 2006 and Director's Order 47, soundscape policies as cited by both the DEIS Dr. Clark (part 1 of my April 24 complaint);
- (ii) Represented ambient noise metrics and levels correctly, represented VOLPE (FAA) 2011 data correctly, and calculated distances for sound to dissipate correctly, in Chapter 4 (Tables 4-2, 4-3, & 4-4) (parts 3 & 4 of my April 24 complaint);
- (iii) Made the correct conclusions on soundscape impacts in Chapter 2 given the misrepresentations of noise generators and ambient noise metrics and levels in Chapters 3 and 4 (part 5 of my April 24 complaint).
- (iv) Utilized the full 59 days of audio recordings and data analysis from VOLPE (FAA) microphone PORE 004 along the shore of Drakes Estero to determine soundscape impacts of DBOC boats and onshore equipment (part 4 of my April 24 complaint).

Concerning the VOLPE data that were not disclosed in the DEIS, some of these FAA data were initially provided by NPS soundscape scientists at Fort Collins, and further FAA data was subsequently obtained by FOIA. The VOLPE data are best utilized when combined with GPS data from DBOC boats indicating time, location, and speed (data available to NPS that they were aware of), and with time- and date-stamped photographs from the series of 281,000 NPS photos (NPS data from two secret NPS cameras, operational on the shores of Drakes Estero from May 5, 2007 to June 2010).

Both periods of VOLPE audio recordings can be matched with photographs or GPS records to indicate precise DBOC boat locations at specific times, since the NPS camera was operational in the summer of 2009, and the DBOC GPS recording was operational in winter 2010. The VOLPE (FAA) audio data, when combined with NPS photos and DBOC GPS data, strengthen the scientific analysis presented in part 4.

Taken together, this body of data contradicts the NPS numbers in Tables 3-3, 4-2, 4-3, and 4-4 of the DEIS, and supports the numbers provided in the ENVIRON report. Further analysis of these data (i.e., containing data obtained and analyzed subsequent to my April 24, 2012 complaint) will be sent to you by TransferBigFiles.

In summary, the three questions to ATKINS for Dr. Clark set forth in your April 19, 2012 letter addressed only one of five relevant parts of the scientific information submitted to you on April 24 (Dr. Goodman to DOI Inspector General, part 2 and not parts 1, 3, 4, or 5). Even for part 2 (Table 3-3), your three questions were incomplete and Dr. Clark's answers incomplete and superficial.

If the peer review and re-review of the DEIS is to be meaningful, it is recommended that you direct Dr. Clark to perform a proper re-review of the soundscape analysis in the DEIS. Dr. Clark needs to re-consider each of the specific conclusions he wrote in his first review (as described in part 6 of my April 24 complaint).

The Office of Management and Budget (OMB) 2004 directive "Final Information Quality Bulletin for Peer Review" stated:

"Peer review typically evaluates the clarity of hypotheses, the validity of the research design, the quality of data collection procedures, the robustness of the methods employed, the appropriateness of the methods

employed, the appropriateness of the methods for the hypotheses being tested, the extent to which the conclusions follow from the analysis, and the strengths and limitations of the overall product.”

The federal policy goes on to define “influential scientific information” in a way that includes all of the data and analyses described here as missing from Dr. Clark’s peer review. The original ATKINS final peer review and the ATKINS re-review do not meet the OMB standards and requirements. When a peer review excludes and omits important data and analyses, it is by definition incomplete. I urge you to direct ATKINS, consistent with the questions presented below, to complete the peer review.

35 Questions for Dr. Clark:

A. NPS Management Policies 2006 and Director’s Order 47

- 1) Did NPS follow NPS Management Policies 2006 concerning soundscape data?
- 2) Did NPS follow NPS Director’s Order 47 concerning soundscape data?
- 3) Did the DEIS confirm that NPS had established a sound management plan for DBOC, set appropriate acoustic goals, monitored DBOC noise-generating human activities, and communicated their goals and measurements to DBOC as required by mandatory NPS policies?
- 4) Did the DEIS confirm that NPS previously identified DBOC noise-generating human activities, measured human-generated sounds, and measured baseline conditions relative to DBOC?
- 5) Are the metrics, measurements, and calculations used in this DEIS consistent with, in your experience, other EIS, EA, and other reports, particularly those by DOI or NPS?

B. Chapter 3 of DEIS

- 6) Are the data labeled “Noise Generators at DBOC” in the DEIS Table 3-3 from DBOC boats or equipment, and if not, do they properly represent DBOC boats or equipment?
- 7) Was it appropriate to use the Noise Unlimited 1995 report on jet skis and other fast, noisy boats off the New Jersey shore to represent the DBOC oyster boats in Drakes Estero?
- 8) Was it appropriate to use the Federal Highway Administration Construction User’s Guide to represent the ¼ HP 12-volt electric motor on the oyster tumbler and other DBOC onshore equipment?
- 9) Were the ENVIRON data on the DBOC boats and onshore equipment collected using appropriate sound-measuring techniques?
- 10) Do the ENVIRON data of DBOC boats and equipment provide more accurate representations of the “Noise Generators at DBOC” than the data from other boats and equipment used by NPS in Table 3-3?
- 11) Do the ENVIRON data represent the best available scientific information on “Noise Generators at DBOC”?

12) To what degree did the data in Table 3-3 over-estimate “Noise Generators at DBOC”?

C. Chapter 4 of DEIS

13) The DEIS cited the VOLPE 2011 report for L_{50} measurements of ambient noise at Drakes Estero. Is this the only ambient noise metric reported in the VOLPE 2011 study? Is the L_{eq} (or L_{Aeq}) an equally or more appropriate measure?

14) Tables 4-2, 4-3, and 4-4 in the DEIS used “*lowest daily ambient level*” and cited the data to the VOLPE 2011 report. Does the VOLPE report use this metric?

15) Tables 4-2, 4-3, and 4-4 in the DEIS used “*lowest daily ambient level*” as the metric for ambient noise. Have you ever seen this metric used before? Is it used in any other NPS or VHB published report? Any other EIS or EA? Is it a typical measurement in your field? Is “*lowest daily ambient level*” a standard recommended by the NPS Fort Collins soundscape scientists for soundscape analysis? Can you find it in any other document on the internet using a Google search?

16) Tables 4-2, 4-3, and 4-4 in the DEIS used a number of 24 dBA for the ambient noise measurement at Drakes Estero, and claimed that this number came from the VOLPE 2011 report. Can you identify the source of that number in the VOLPE report? Was this an appropriate citation to the VOLPE report? Do you have any idea where this number came from?

17) Should Tables 4-2, 4-3, and 4-4 in the DEIS have used L_{eq} (41 dBA) or L_{50} (34 dBA) or both to represent ambient noise measurements from the VOLPE 2011 report instead of “*lowest daily ambient level*” (24 dBA)?

18) Do Tables 4-2, 4-3, and 4-4 represent appropriate calculations of the distance for sound from DBOC noise generators to dissipate? Are conclusions appropriately drawn from the distances for sound to dissipate generated by these tables?

19) The DEIS claimed that the DBOC oyster tumbler can be heard for 2.4 miles, whereas the ENVIRON report claimed that the oyster tumbler can be heard for 140 feet. In a similar fashion, the DEIS claimed that the oyster boat can be heard for 1.3 miles whereas the ENVIRON report claimed that the oyster boat can be heard for 400 feet. Which are correct estimates given the noise generators and ambient noise measurements at Drakes Estero?

20) To what degree did the data in Tables 4-2, 4-3, and 4-4 over-estimate the distance for sound to dissipate from “Noise Generators at DBOC”?

21) The oyster boats at sandbars OB and UEN typically stay over 600 yards, and more often 700 or more yards, away from the harbor seals at sandbar OB during pupping season. There are sandbars between them that block the direct sound path. Do the data suggest to you that the harbor seals can hear the oyster boats when the seals are hauled out on sandbar OB?

D. Data from VOLPE/FAA microphone PORE 004

22) The DEIS reported, and you repeated, that the VOLPE microphone PORE 004 on the shore of Drakes Estero collected data for 30 days in July/August of 2009. Is this correct? Didn't the VOLPE microphone also collect data for another 29 days

in January/February of 2010? Why are only some of the data cited in the DEIS? Why were some data omitted from the DEIS?

- 23) The DEIS stated that the bluff below the microphone might have blocked the sound path from the oyster boats to the microphone, and this could be why the oyster boats and equipment were not recorded by the VOLPE microphone. Specifically, the DEIS stated: *“Topography can affect sound transmission through air. Steep topography such as the bluffs around some of Drakes Estero can block sound transmission. Because the 2009 sound measurements used in this EIS were taken on a bluff well above Drakes Estero, the measurements may have recorded limited mariculture-related noises.”* This seems unlikely since the VOLPE microphone was intentionally placed in a human sound-sensitive area. In fact, the VOLPE microphone (summer 2009, winter 2010) was placed very close to the two NPS secret cameras (May 2007 to June 2010) located to photograph DBOC boats and harbor seals. Both Google earth elevation profiles (using GPS coordinates from VOLPE and DBOC) and photographs taken by FAA scientists show that this is incorrect, with an unobstructed visual and sound path from boat to microphone. In your opinion, was there a block to the sound path between the DBOC boats to the microphone? Is there any reason to believe that the VOLPE microphone PORE 004 should not have recorded the DBOC boats and equipment if they could be heard above ambient noise at that location? Given the FAA photos of DBOC boats taken from the location of the microphone, should the statement about the sound path being blocked be deleted from the DEIS, and the microphone data properly presented?
- 24) In your original review, you wrote that the microphone was 2 miles from the onshore DBOC operations. The numbers in Tables 4-2, 4-3, and 4-4 indicate that the noise from onshore DBOC equipment should be heard for 2.4 to 3.3 miles. Given these numbers, shouldn't the microphone have picked up the noise generated by the DBOC onshore equipment? But in two months of recording (one in summer, one in winter), it did not. What does that tell you about the noise generated by the DBOC equipment? What does this tell you about the numbers in Tables 4-2, 4-3, and 4-4 in the DEIS?
- 25) The VOLPE (FAA) microphone was also only 0.6 miles from the DBOC boats at the west end of the lateral channel, not much further than the harbor seal haulout at sandbar OB. The numbers in Tables 4-2, 4-3, and 4-4 indicate that the noise from the DBOC boats should be heard from 1.3 miles. Given these numbers, shouldn't the microphone have picked up the noise generated by the DBOC boats? But in two months of recording (one in summer, one in winter), it did not. What does that tell you about the noise generated by the DBOC boats? What does this tell you about the numbers in Tables 4-2, 4-3, and 4-4 in the DEIS?
- 26) By multi-agency protocol, the DBOC boats traveled down the main channel, within a few hundred feet of the VOLPE microphone, once each week to collect samples for the California Dept. of Health Services. Using GPS data from the DBOC boats, it was determined that the microphone did in fact record the DBOC boats when they were just a few hundred feet from the microphone, and those sound measurements were consistent with the ENVIRON report. Would you conclude that the recordings from the VOLPE microphone validated the ENVIRON report? Does that make you more confident in the ENVIRON data? Do you believe that

the measurements from the VOLPE microphone and DBOC GPS data should be properly cited in the DEIS?

E. Chapter 2 of DEIS

27) Given the NEPA definitions (as found in the DEIS) of major and moderate impacts, do you agree with Chapter 2 that the correct soundscape data and analysis supports soundscape being a major impact in this DEIS?

28) Given the NEPA definitions (as found in the DEIS) of major and moderate impacts, do you agree with Chapter 2 that the correct soundscape data and analysis supports wilderness, as based upon soundscape, as being a major impact in this DEIS?

29) How would you characterize the level of impact of “Noise Generators at DBOC”? Does your conclusion fit the NEPA definition of a major impact?

F. Dr. Clark’s original conclusions

30) In your original peer review, you described the NPS soundscape data in the DEIS as providing “*compelling support for its conclusion.*” Based upon a complete review of the data in Chapter 3 and 4 and the additional data provided by ENVIRON, VOLPE, DBOC, and Goodman, does that conclusion remain unchanged?

31) In your original review, you described the NPS soundscape data in the DEIS as showing that DBOC noise generators “*negatively effect wildlife.*” Given your analysis of the data, does that conclusion remain unchanged?

32) In your original review, you described the NPS soundscape data in the DEIS as providing “*ample acoustic scientific evidence by which the DEIS can determine that DBOC noise-generating activities have negative impacts on both the human visitor experience and the seashore’s wildlife.*” Given your analysis of the data, does that conclusion remain unchanged?

33) In your original review, you described the NPS soundscape data in the DEIS as leading you “*to conclude that this DEIS is robust, and that its recommendation for Alternative A is substantial and justifiable.*” Given your analysis of the data, does that conclusion remain unchanged?

34) Given your analysis of the data, do you now conclude that DBOC noise generators have a major negative impact on wildlife?

35) Given your analysis of the data, do you now conclude that DBOC noise generators have a major negative impact on visitors?

June 25, 2012

From: Dr. Corey S. Goodman

To: Dr. Ralph Morgenweck, Scientific Integrity Officer, Department of the Interior

Re: Dr. Chris Clark's re-review of the DEIS: Part 2 – the re-review is superficial

Dr. Morgenweck,

As stated in my first June 25 letter to you (part 1), Dr. Clark's review of the soundscape data in the NPS DEIS was found to be both incomplete and superficial, and not adherent to the Office of Management and Budget (OMB) directive for federal peer review. Part 1 addressed the issue of incompleteness. Part 2 here addresses the issue of superficiality.

In summary, in Dr. Chris Clark's re-review of the DEIS, although the data completely changed (from the NPS data to the ENVIRON data) and the noise levels and distances for sound to dissipate dramatically decreased (e.g., from 2.4 miles to 140 feet), Dr. Clark's conclusions nevertheless did not change.

Dr. Clark's failure to reassess his specific scientific conclusions when presented with new and very different data (which clearly supports different conclusions) suggests that his conclusions were based upon personal beliefs and not scientific data.

The ATKINS/Clark re-review of the soundscape section of the DEIS raises concerns about the integrity of this scientific peer-review process. The re-review ignores misrepresentations and concealment of data, and appears to draw conclusions based upon personal beliefs and not science. It certainly is not the kind of scholarly scientific review that should be expected from Interior's Scientific Integrity Officer, an independent departmental contractor (ATKINS), and a Cornell University professor (Dr. Clark), given the "... *recognition of high interest in the science related to Point Reyes*" (from Dr. Morgenweck's statement in the March 19 Interior press release).

In the NPS DEIS, soundscape data presented in Chapters 3 and 4 played a major role in driving the two major environmental impacts – soundscape and wilderness – in Chapter 2. The data in Table 3-3 on "*noise generators at DBOC*" as we now know did not come from Drakes Bay Oyster Company (DBOC) and Drakes Estero, but rather from a NOISE UNLIMITED 1995 report for the New Jersey State Police on loud, noisy jet skis and boats off the New Jersey shore, and from a Federal Highway Administration Construction User's Guide 2006 report. Table 3-3 was deceptive, misrepresenting data on loud boats and equipment from far away as if "representative" of DBOC boats and equipment in and along Drakes Estero.

It appears as if the NPS DEIS soundscape data deceived Interior's Scientific Integrity Officer, the ATKINS team, and the peer-reviewer. All three appeared to accept Table 3-3 as if the data truly came from DBOC boats and equipment. In Dr. Clark's peer review of the soundscape section for ATKINS, he believed that the data in Table 3-3 came from NOISE UNLIMITED 1995 measurements of noise generated by DBOC boats and equipment. He wrote as much.

In his original peer review, Dr. Clark called these NPS data "*compelling*" and "*robust.*" ATKINS accepted Dr. Clark's peer review, and Dr. Morgenweck praised the review.

Each failed to understand the origins of the soundscape data, and the resulting misrepresentations and deception.

Was Dr. Clark deceived? Dr. Clark explicitly told me so in a phone call on March 21 (see appendix #1). How and why did NPS employees accept this peer review and subsequent Interior press release without flagging the obvious error?

On the same day that Dr. Clark told me that he was deceived, he wrote to me (see appendix #2) that he would change his major conclusion, given the revelations of the deceptive and misleading data. Where he originally concluded “... *that there is ample acoustic scientific evidence by which the DEIS can determine that DBOC noise-generating activities have negative impacts on ... the seashore’s wildlife,*” after learning the truth about the NPS data and seeing the ENVIRON data of DBOC boats and equipment on March 21, Dr. Clark concluded that he did “...*not believe that these activities have a biologically significant impact on wildlife ...*” In other words, on March 21, Dr. Clark retracted his original conclusion concerning impact on wildlife.

In this new May 7, 2012 re-review (released publicly on June 14), Dr. Clark accepted the ENVIRON 2011 data, and acknowledged that the NPS data were “*not representative of actual DBOC noise-generating activities,*” something that NPS supporters have steadfastly refused to do (on this point, Dr. Clark got it right). In the face of such a substantial change in the soundscape data, Dr. Clark nevertheless stood by his original conclusion (and effectively retracted his earlier retraction).

For example, the DEIS claimed that the DBOC oyster tumbler could be heard for 12,672 feet (2.4 miles). The ENVIRON data shows that it can be heard for only 140 feet. That is a difference of over two orders of magnitude (100X). Nevertheless, Dr. Clark did not change his conclusions. He originally concluded that he found the NPS data “*compelling*” and “*robust.*”

Having now concluded that those originally-reviewed data do not represent DBOC boats and equipment, Dr. Clark nevertheless failed to explain this contradiction and instead remained silent about his previous statements. He wrote that he stood by his original conclusions. Which original conclusions? All of them?

Dr. Clark previously described the NPS data in the DEIS as “*compelling,*” “*robust,*” “*ample,*” showing “*negative impacts on ... wildlife,*” and the NPS conclusions “*reasonable and supported by available data.*” Dr. Clark was unchanged in spite of concluding that those NPS data were not from DBOC boats and equipment at Drakes Estero and were not “*representative.*” Dr. Clark accepted the ENVIRON data of those boats and equipment that were up to two orders of magnitude (100X) smaller in terms of the distance required for the noise to dissipate. How did his conclusions remain unchanged?

It is a concern that Dr. Clark appears to still be unfamiliar with the primary data and documents he was asked to review – for a second time. On the one hand, Dr. Clark reviewed and accepted the ENVIRON 2011 report data. As shown below, however, Dr. Clark still did not fully understand the Noise Unlimited 1995 and Federal Highway Administration 2006 reports, had not analyzed the VOLPE (FAA) 2011 report, did not realize that NPS concealed relevant data recorded from FAA microphone PORE 004, and seemed oblivious to the multiple layers of misrepresented and concealed data in the NPS DEIS. He also appeared unaware of Dr. Goodman’s analysis (even though a summary of Dr. Goodman’s findings was provided to Dr. Clark on April 25, 2012).

Below we explore this inexplicable contradiction. Dr. Clark's own words – in his March 21 phone call and emails with me – provide insight. In short, Dr. Clark abandoned science. By Dr. Clark's own words, his conclusions came about personal belief and not data. Dr. Clark wrote on March 21:

*In any case, **to me this is really not about the science of absolute or even relative sound fields** generated by various machines and things that humans do. There are too many horror stories on that front, and even the blatant ones mostly go unmitigated, unless humans might be harmed (**This one is trivial.**) **Rather, it's about whether or not and just how much society values wilderness. In this case, it really doesn't matter whether the DEIS incorrectly gives 79 dBA or 65 dBA as the sound value for a "Frontend Loader." The issue is really about whether we, or whomever, decide that there are places that should be left alone in every way possible.** [emphasis added]*

In contrast to what Dr. Clark wrote, it does matter. The data do matter. Science is based upon data, not beliefs. As the late Daniel Patrick Moynihan said: *"Everyone is entitled to their own opinion, but not their own facts."* It does matter that the DEIS misrepresented noise generated by the DBOC oyster boat at 71 dBA when it is really 58 dBA. It does matter that the DEIS misrepresented the DBOC forklift at 79 dBA when it is really 65 dBA. It does matter that the DEIS misrepresented the DBOC oyster tumbler at 79 dBA when it is really 50 dBA. And it does matter that the DEIS misrepresented the ambient noise level at 24 dBA when it is really 41 dBA (L_{eq}) or 34 dBA (L_{50}), depending upon which metric is used. Facts and data do matter.

The false data led to false estimates that the sound from the oyster tumbler dissipates over 2.4 miles, whereas the real data led to estimates of 140 feet. If Dr. Clark believes that these types of misrepresentations in the DEIS do not matter, then he is no longer functioning as a scientist and is and was an inappropriate choice for the peer review. His comments are inconsistent with a NEPA process based upon precise definitions of impacts that rely on measurements and data.

ATKINS final peer-review and the soundscape section review by Dr. Chris Clark

The original ATKINS peer-review of the NPS DEIS was released to the public on March 19, 2012 by the Department of the Interior and Interior's Scientific Integrity Officer Dr. Ralph Morgenweck with a press release from the Department of the Secretary, DOI, which stated:

Atkins found generally the analyses in the draft EIS to be "appropriate, and that there is no fundamental flaw with the larger scientific underpinning of the DEIS." The panel also makes specific recommendations for how the final EIS can be strengthened, including: ... conducting a "sound source verification" study to document all the company's noise sources ...

"The peer-review accomplished exactly what we were seeking – that is, specific recommendations on how to improve the final environmental impact statement to make it a better science product," stated Dr. Ralph Morgenweck, Interior's Scientific Integrity Officer.

The soundscape section of the NPS DEIS was reviewed by Dr. Christopher (Chris) Clark or Cornell University. Concerning DBOC boats and equipment, Dr. Clark wrote as part of the ATKINS final peer review (as released on March 19):

*“Overall, I found that the Soundscape section provided **compelling** support for its conclusion ...”*

*“The data and synthesis presented in both sections support the conclusion that noise producing DBOC activities not only impact human experiences in the Drakes Estero but also **have the potential to negatively effect wildlife in the Point Reyes National Seashore.**”*

*“I conclude that there is **ample acoustic scientific evidence** by which the DEIS can determine **that DBOC noise-generating activities have negative impacts on both the human visitor experience and the seashore’s wildlife.**”*

*“The scientific evidence presented leads me to conclude that this DEIS is **robust**, and that **its recommendation for Alternative A is substantial and justifiable.**” [emphasis added]*

Dr. Clark wrote that the soundscape data were “*one of the document’s core issues*” and believed that his comments on the “*Soundscape section readily apply to this Wilderness section.*” These were the only two sections of the DEIS that led in Chapter 2 to a finding of “major” environmental impact. Dr. Clark described the data he reviewed in Chapter 3 as follows:

“Provides some sound level data for Drakes Estero using standard techniques and metrics. Two sets of data are presented. Data (considered “best available and reasonable measurement”) were collected in 2009 (Volpe 2011) from a site two miles from the onshore DBOC operations. They use A-weighted L₅₀ values, in dBA units, as the acoustic metric. As stated in the report: “These measured levels included noise from DBOC operations and other human activities, and they included natural sound energy from portions of the audio spectrum well above the noise energy generated by DBOC.” Table 3-3 shows noise level values within close proximity to specific DBOC noise sources. According to this table these data were collected by Noise Unlimited, Inc. (1995) and represent two types of relatively small motorboat engines (20 horse power [HP] and 40 HP), a diesel forklift, pneumatic drills and an oyster tumbler. Noise level values in dBA are given relative to 50 feet from each of these sources. The document concludes that these measures are reasonable representations of the existing acoustic environment by which to make comparisons.”

Dr. Clark believed the measurements in Table 3-3 provided “*sound level data for Drakes Estero*” from “*specific DBOC noise sources*” when Table 3-3 had not.

Dr. Clark believed that the NOISE UNLIMITED 1995 report had measured DBOC motorboat engines as well as the DBOC pneumatic drill and oyster tumbler when NOISE UNLIMITED had not.

Dr. Clark believed the DEIS used the VOLPE 2011 report “*A-weighted L₅₀ values*” as a

measure of ambient noise, when Tables 4-2 to 4-4 had not.

Dr. Clark believed the NPS DEIS used “*best available science*” when it had not.

The ATKINS peer review summarized Dr. Clark’s findings:

“Clark found the conclusions presented in the DEIS to be reasonable and supported by available data and scientific concepts.”

Dr. Clark believed that the NPS data in the DEIS came from DBOC boats and equipment at Drakes Estero.

Dr. Clark was deceived, and he said so to me on March 21.

Phone call with Dr. Clark on March 21, 2012 and email exchange from March 20-22

Two days after the ATKINS peer review was released, on Wednesday March 21, 2012, I telephoned Dr. Clark at 8:04 am PT. My detailed contemporaneous notes of that conversation, as well as the email exchanges before, during, and after that conversation, are included here as appendix #1. Those notes and emails provide clear insight into Dr. Clark’s views.

Dr. Clark told me on March 21, 2012 that he “*assumed*” the data were from “*field measurements at Drakes Estero.*” After learning the true source of the data, and the real sound measurements of DBOC equipment made by ENVIRON, Dr. Clark changed his view. He told me: “*I was led to believe these tables were from field activities of DBOC.*” He told me that he was “*deceived.*”

In our phone call on March 21, given the revelations that the NPS DEIS had used exaggerated noise measurements from the Noise Unlimited 1995 report on New Jersey police boat measurements to misrepresent the DBOC oyster boats, and from the Federal Highway Administration Construction User’s Guide to highway construction equipment to misrepresent the DBOC onshore equipment, I asked Dr. Clark specifically about the impact on wildlife, and his conclusion in the ATKINS peer review that the NPS data were robust and compelling and showed a major impact on wildlife.

Clark replied: “*I am not in agreement with the National Park.*” Given what you’ve told me about the numbers in Table 3-3 and the ENVIRON report, I would conclude that there is “*no biological impact of the oyster farm on wildlife.*”

Clark told me the same by email four hours later. He wrote:

... I do not believe that these activities have a biologically significant impact on wildlife ...

In that single statement, Dr. Clark retracted one of his most significant conclusions in his original peer review, namely, his confirmation of a major impact on wildlife.

Scientific Misconduct and Fraud Complaints Filed on March 26 & April 24, 2012

On March 26, seven days after the ATKINS peer review was published, I filed a scientific misconduct complaint with the Department of the Interior concerning the soundscape section of the NPS DEIS. At the time, the initial complaint was based upon the NPS false representations of key acoustic data in Chapter 3 of the DEIS, and in particular in

Table 3-3. Data from a large, noisy jet ski, or some other large, noisy boat from along the New Jersey shore in 1995, was misrepresented in the DEIS as if it came from measurements of the DBOC oyster boats in Drakes Estero. Data from large, noisy highway construction equipment from a federal guide were misrepresented in the DEIS as if they came from measurements from DBOC equipment along the shore of Drakes Estero.

By the time I filed the fraud complaint with the Inspector General on April 24, and based on new information, I realized that the deceptions related to soundscape issues was much broader and deeper than was known on March 26. The original March 26 misconduct complaint contained only one (#1 below) of four parts of the April 24 fraud complaint concerning the data and conclusions in the NPS DEIS.

- (1) Made false representations of key acoustic data in Chapter 3 of the DEIS.
- (2) Made false representations of key acoustic data in Chapter 4 of the DEIS.
- (3) Concealed key acoustic data in Chapters 3 and 4 that contradicted DEIS.
- (4) Drove incorrect findings of major impacts in Chapter 2 of the DEIS.

For complete details, see the complaint filed with DOI Inspector General Mary Kendall.

Letter from Dr. Morgenweck to Dr. St. Claire on April 19, 2012

On April 19, Dr. Morgenweck (DOI SIO) sent a letter to Dr. St. Claire (ATKINS) that was forwarded to Dr. Clark (Cornell University). Dr. Clark was provided with the ENVIRON report and asked specifically about the data in Table 3-3. 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 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?*

Based upon the May 7 re-review, it appears as if after I filed my detailed complaint with the Inspector General on April 24, that neither the questions nor the available documents provided to Dr. Clark were modified to include the full scope of the complaint. Dr. Clark was not asked about Chapter 4 and the ambient sound measurements and metrics. Dr. Clark was not asked about the misrepresentations of the VOLPE report. Dr. Clark was not asked about the exaggerated distances for sound to dissipate provided in Tables 4-2, 4-3, and 4-4. Dr. Clark was not told about the existence of the recordings from FAA microphone PORE 004. He was not asked about the two major impacts (soundscape

and wilderness) that relied upon these soundscape data.

It appears as if Dr. Morgenweck did not provide Dr. Clark with my April 24 complaint, along with the additional data and revelations from that analysis. Rather, both Dr. Morgenweck and Dr. St. Claire allowed Dr. Clark to re-review the soundscape section of the NPS DEIS based upon selective and incomplete information, with a focus largely on Table 3-3. However, on April 25, DBOC consultant Mr. Weiman sent my formal complaint and summary to ATKINS and Dr. Clark, raising the question of why ATKINS and Dr. Clark did not broaden the scope of their comments in their re-review to include Chapter 4, Tables 4-2 to 4-4, the ambient sound metric, the ambient sound measurements, the distances for sound to dissipate, and the two major impacts that relied on these data and analyses.

Dr. Clark's re-review and Dr. St. Claire's letter to Dr. Morgenweck on May 7, 2012

Dr. Clark wrote:

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.

Unfortunately, this apparently was not the case. As shown below, Dr. Clark's answers were not based on science, but rather reflected his personal views on wilderness and the irrelevance of the soundscape data to him. It doesn't matter, he told me, whether the DBOC boats and equipment are loud or quiet, or whether they can be heard for miles or a few feet. Dr. Clark told me in our phone call on March 21:

Human activities do change the acoustic soundscape. It is not a matter of whether there is an impact.

Clark told me that any amount of human noise, no matter how little, was by definition a human impact.

Dr. Clark then wrote to me a few hours later on March 21:

In any case, to me this is really not about the science of absolute or even relative sound fields generated by various machines and things that humans do. ... Rather, it's about whether or not and just how much society values wilderness. ... The issue is really about whether we, or whomever, decide that there are places that should be left alone in every way possible.

He suggests that any human noise, regardless of how insignificant or trivial, runs counter to his notion of wilderness, and thus should be eliminated. He told me in our phone call, and then wrote to me a few hours later, that, given the correct data, he now concluded that the DBOC boats and equipment would not have a significant impact on wildlife. He wrote to me that the impact on humans, in this case, would be "trivial." But he stood by what seems to be his own sense of wilderness, that in spite of airplanes and cars and other human sounds, that there should be zero tolerance for any human noise (he did not comment on hikers, campers, horseback riders, clam diggers, and kayakers – the major causes of human disturbances and noise at Drakes Estero in a Seashore with 2.6 million visitors annually).

Thus, while he wrote that his re-review was based upon "science," it in fact clearly

appears to be based upon his personal values and beliefs, both of which were outside the scope of the peer review process and NEPA process. Confronted with the correct numbers that are two orders of magnitude smaller (in terms of distance for the sound to dissipate), Dr. Clark nevertheless wrote that his conclusions were unchanged.

Let's explore his re-review in some detail. Below is an analysis of his responses to questions #1-3. Keep in mind what was not asked of him in these questions – nothing about ambient noise metrics and measurements, nothing about distances for sound to dissipate, nothing about concealed data from the PORE 004 microphone, and nothing about the major impacts that rely on the soundscape data.

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 L₅₀ 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.

Dr. Clark concluded that the ENVIRON data are sound when he wrote:

... 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.

While accepting the ENVIRON data, Dr. Clark became critical of both the DEIS and the ENVIRON data, in contrast to his original review in which he accepted the DEIS data with few criticisms. He wrote about the need for more and better data. He was apparently unaware that the FAA microphone PORE 004 recorded from Drakes Ester for 59 days during July-August 2009 and January-February 2010, and that these data were analyzed and are available to him (I have received and analyzed those data, in combination with DBOC GPS data and NPS photographic data). The data from the PORE 004 microphone confirm the ENVIRON data (for details, see part 4 of my April 24, 2012 complaint).

Dr. Clark wrote:

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 calculated L_{50} values for that site and time period.

Dr. Clark wrote a second review of the soundscape sections of the DEIS and it appears as if he did so without examining the VOLPE (FAA) 2011 report. More generally, it appears as if Dr. Clark wrote his re-review and still did not examine the primary sources of soundscape data.

Dr. Clark accepted the DEIS description that the microphone PORE 004 data were collected in July/August of 2009, when in fact this microphone also collected data in January/February of 2010. This suggests that he never read the VOLPE 2011 report.

Dr. Clark accepted the DEIS description that the measurements were used to calculate L_{50} values for that site and time period as a measure of ambient noise level, when in fact, the VOLPE report calculated both the L_{eq} and the L_{50} for that site and time period. Again, this shows that he never read the VOLPE 2011 report.

Dr. Clark accepted that the DEIS estimates are based upon the L_{50} from the VOLPE report, even though Tables 4-2 to 4-4 in the DEIS reveal that the NPS used a metric they called “*lowest daily ambient level*” to calculate the distances required for the DBOC noise to dissipate. Dr. Clark apparently had not examined Tables 4-2, 4-3, & 4-4 in Chapter 4.

Dr. Clark appears unaware of what is contained in my April 24 complaint, namely, that the NPS measure of ambient noise, “*lowest daily ambient level*,” is neither found in the

VOLPE report nor anywhere else on the internet using a Google search. NPS apparently made up this new ambient noise metric and misrepresented it as coming from the VOLPE report.

Dr. Clark also was unaware of the extent (two months not one) of the VOLPE data, and the fact that the microphone was 0.6 miles from the DBOC boats at the west end of the lateral channel (he simply said it was 2 miles from the DBOC equipment).

Finally, Dr. Clark was oblivious to the issue that the DEIS claimed that the bluff blocked the sound path from the boats to the microphone, whereas FAA/NPS photos show an unobstructed sound path from boats to microphone.

Dr. Clark's original review of the soundscape sections of the NPS DEIS was incorrect. His re-review of the same data was superficial. He still appears to not realize the nature of the primary data, and the misrepresentations of that data in the DEIS. This is all the more puzzling given that Dr. Clark was sent my complaint and summary on April 25.

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.

Dr. Clark wrote that "there are some additional DBOC noise level data that have become available since submission of the DEIS." His comment was an understatement. The ENVIRON report was submitted to NPS in early December, prior to ATKINS being retained to conduct the peer review. The DEIS contained zero DBOC noise level data. There are now some DBOC sound data (the ENVIRON report). It is unclear whether Dr. Clark had access to the ENVIRON data prior to his original peer review. The original ATKINS report stated that Dr. Clark "mentioned that further studies have been conducted since the DEIS was completed ..." – apparently a reference to the ENVIRON report.

Dr. Clark said in his re-review that the ENVIRON data should lead to revisions to the DEIS Table 3-3. He said nothing of the equally important revisions required to Tables 4-2, 4-3, and 4-4.

Dr. Clark wrote, concerning the ENVIRON data, that “*these are the only additional data that I am aware of.*” Dr. Clark was not aware of, or informed about, the two-months of second-to-second data from the FAA microphone PORE 004 along the shore of Drakes Estero. The data from PORE 004 confirm the ENVIRON data, but Dr. Clark was unaware of this.

Dr. Clark wrote of wanting to see more data, but speculated that it might take several more years. He was not aware that the first installment of such data was obtained in 2009 and 2010, and published by the FAA in 2011, from recordings at microphone PORE 004. These data, with considerable analysis including spectrograms, are available from both the FAA or the NPS. The FAA data (when analyzed using DBOC GPS data and NPS photographic data to define the location of DBOC boats at precise times) confirm the ENVIRON data and analysis (described in detail in my April 24 complaint).

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.

Dr. Clark concluded that the ENVIRON data are appropriate and helpful “*in that it provides actual noise level measurement data for specific DBOC noise-generating activities at close range.*” This statement certainly helps clear the air, given the way in which NPS supporters have attacked the ENVIRON data. For example, on April 2, 2012, the Environmental Action Committee of West Marin wrote an 18-page letter to Dr. Morgenweck criticizing the ENVIRON data, and their critique was supported in a press

release by the Public Employees for Environmental Responsibility. Dr. Clark's re-review and acceptance of the ENVIRON data should put those arguments to rest.

Concerning Table 3-3, Dr. Clark wrote in the May 7 re-review:

Some of those activity level values in the DEIS Table 3.3 were not representative of actual DBOC noise-generating activities.

When Dr. Clark conducted his original peer review, he did not know the origin of the numbers in Table 3-3 (i.e., the DBOC boats were inappropriately represented by the NOISE UNLIMITED 1995 report and the DBOC onshore equipment inappropriately represented by the FHWA 2006 Construction User's Guide). Dr. Clark apparently may still not be fully aware of the origin of the numbers in Table 3-3. In his May 7 re-review, he wrote that "some" of the values in Table 3-3 were "not representative" when in fact "all" of the values were misrepresented.

His re-review was remarkably mild when it came to NPS. Dr. Clark avoided even acknowledging the misrepresentations and deception in the NPS data he originally reviewed. He wrote nothing of where the data came from.

Dr. Clark never once mentioned the inappropriateness of NPS using the NOISE UNLIMITED 1995 data from a jet ski or other loud and noisy boat off the New Jersey shore. He never once mentioned the inappropriateness of NPS using the highway construction equipment guide, and representing the ¼ HP, 12 volt electric motor of the oyster tumbler with some loud, noisy piece of construction equipment (be it a rivet buster or a 400 HP cement truck).

Dr. Clark did not acknowledge or admit that he was deceived by the DEIS. Dr. Clark's re-review is noteworthy for what was avoided or not addressed.

Dr. Clark's final conclusion

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

It is difficult to reconcile Dr. Clark's final conclusion (which is key to Dr. St. Claire's cover letter to Dr. Morgenweck that concluded "Dr. Clark's opinion is unchanged") with the dramatic changes in data that he accepted when he answered the three questions from Dr. Morgenweck.

Dr. Clark's answers were written as if he was unaware of the full extent of the data and analysis contained in the complaint pending with the Inspector General, when in fact he was sent that complaint on April 25. His re-review was written as if he was unaware of the complete misrepresentation, deception, and concealment of data. For example, he was unaware of the issue of the NPS metric for ambient noise, and the way in which the NPS misquoted the VOLPE 2011 report. He was unaware of the two months of data from the PORE 004 microphone. Confronted with the ENVIRON data that decreased the distance for DBOC sound to dissipate by two orders of magnitude (over 100 fold less from 2.4 miles to 140 feet), Dr. Clark nevertheless stuck to his original conclusions.

Dr. Clark selected and measured his words in the re-review with great care. He side-stepped and avoided critical issues. He did not comment on whether the data and data analysis in the DEIS were “*reasonable and appropriate.*” He failed to comment on his original conclusions that the NPS data were “*compelling*” and “*robust.*” He made no criticism of the NPS data or NPS DEIS.

Rather, Dr. Clark only commented on whether the DEIS “*discussion regarding potential future impacts from human-caused noise generating activities*” were “*reasonable and appropriate.*” He cited Chapter 4, but it appeared as if he never fully analyzed the tables in Chapter 4 (i.e., he has never commented on “*lowest daily ambient level,*” a metric that drives all three tables in Chapter 4, a metric not found in any other EA or EIS available on the internet, and a metric I suspect Dr. Clark has not seen before in any government document).

Dr. Clark wrote that he had based his conclusions on science and not policy. But the opposite appears to be the case. The numbers don’t appear to make any difference to him – the data don’t really matter. Regardless of whether you can hear the oyster tumbler for 2.4 miles or 140 feet, Dr. Clark did not find this of significance and did not change his opinion. For him, any human noise is a major impact to wilderness. He wrote to me: “*It is not a matter of whether there is an impact.*” He told me by phone and in writing that the ENVIRON data led him to conclude that there is no impact on wildlife, and only a “*trivial*” impact on humans. Nevertheless, Dr. Clark wrote that his conclusions were unchanged. Dr. Clark told me on March 21 that any amount of human noise, no matter how little, was by definition a significant human impact on his notion of wilderness (making one wonder how he accepts airplanes and cars, not to mention hikers, kayakers, and horseback riders in wilderness).

In his original peer review, Dr. Clark cited the NPS Management Policies concerning soundscape analysis, but when the actual data fell way below those numbers, he ignored them and maintained that his conclusions were unchanged.

In the DEIS, the NPS ignored the May 5, 2009 National Academy of Sciences (NAS) report that found no major environmental impact because the NAS had not defined the word “major.” Now Dr. Clark cited a definition of a sound impact inconsistent with NEPA rules. To Dr. Clark, any noise – no matter how quiet or trivial – is a significant impact (by what definition?) that supports the NPS conclusion that sound is a major impact.

Dr. Clark’s analysis raised more questions than it answered. It was superficial, selective, and ignored critical issues. He still apparently had not analyzed the documents that contain the primary data quoted in the DEIS. And his views show a bias that goes beyond the NEPA definitions of impacts. His conclusions are irrelevant when considering whether the soundscape or wilderness sections should be considered a major impact, moderate impact, or no impact, since he provided no definition of what constitutes a major vs. moderate impact, and considered any noise, no matter how trivial, to be an impact.

Dr. Tom St. Claire’s cover letter to Dr. Morgenweck on May 7, 2012

... The gist of his [Dr. Clark’s] 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. ... Hence we feel that the currently available scientific information provides a framework for decision-making.

Given what Dr. St. Claire and his colleagues at ATKINS now know about the NPS DEIS and the complaint I filed with the Inspector General on April 24, 2012, this is a puzzling cover letter. Dr. St. Claire accepted that Dr. Clark's opinion was unchanged, even though the data had dramatically changed. Doesn't this puzzle Dr. St. Claire? Dr. St. Claire must be aware that Dr. Clark likely had not seen the full extent of my complaint with the Inspector General. Dr. St. Claire must be aware that Dr. Clark had not read the VOLPE 2011 report and was continuing to cite the misquotes of the VOLPE report from the DEIS. Dr. St. Claire must be aware that Dr. Clark continued to be deceived.

Dr. St. Claire concluded that the "*currently available scientific information provides a framework for decision-making.*" What does "*currently available scientific information*" mean? Does he mean only the data that Dr. Clark has seen? Should the available scientific information also include the VOLPE report, the 59 days of recordings from microphone PORE 004, the DBOC GPS data, the NPS photographic data, and Dr. Goodman's analysis of these data? Dr. Clark reviewed none of these. Dr. St. Claire is aware of all of them.

Given what Dr. St. Claire knows, surely he cannot conclude that this re-review by Dr. Clark, as superficial as it is and as unaware of the data and documents as Dr. Clark appears to be, represented the "*best available data*" and thus a framework for decision-making.

APPENDIX #1: Notes from phone call between Dr. Corey Goodman and Dr. Christopher Clark on Wednesday March 21, 2012, 8:04 am PT (607 254-2405)

Goodman: introduces call – soundscape measurements and analysis at Drakes Estero for ATKINS peer review of NPS DEIS

Clark: knew my name (neurobiology); asked why interested in this topic

Goodman: discussed a little about background, supervisor Steve Kinsey asking me to get involved back in 2007; talked briefly about one of my former graduate students being on faculty in Clark’s department, other common friends on faculty

Clark: responded with a bit of amazement and puzzlement that someone of Goodman’s caliber was involved in this issue

Goodman: asked Clark how he got involved

Clark: identified himself as a bioacoustics engineer and biologist; he said he had been involved in many EA and EIS looking at impacts of noise on wildlife, mostly of marine systems, some underwater; had worked with NPS previously; “I did this for Atkins, for the Department of the Interior. They got my name from Resolv.”

Goodman: “When you did your review, did you think you were looking at Drakes Bay Oyster Company numbers?”

Clark: “Yes”

Goodman: At 8:07 am PT, I email Clark a PDF file with pages from his peer-review report, Table 3-3 from the September version of the DEIS that he reviewed, the same table from the June version of the DEIS that showed the full citations, some pages from the FHWA 2006 report with the tables of the construction equipment, and the key numbers from the ENVIRON report. I told Clark about where the numbers came from as he downloaded the PDF. The numbers in Table 3-3 credited to Noise Unlimited 1995 did not come from Drakes Estero in 1995, but rather came from New Jersey Police Department numbers from 1995. In fact, the number in Table 3-3 came from police boats off the New Jersey shore in 1995. The other numbers came from a Federal Highway Administration Construction Noise User’s Guide from 2006 – from big highway construction equipment. None of the measurements came from Drakes Bay Oyster Company or from Drakes Estero.

[note added later: when I telephoned Clark on March 21, I had not yet seen the actual NOISE UNLIMITED 1995 report. That was sent to me from Washington on March 22 (it was not available on line). Thus I did not yet know that the number 71 dBA matched the Jet Ski in that report. I did sent him the FHWA 2006 report.]

Clark: “no way!”

“I assumed these were field measurements from Drakes Estero.”

“Is this a joke?” -- Clark then laughed, said he couldn’t believe it, wondered if I was pulling his leg

He commented on his amazement at the New Jersey police boat numbers, and the “front end loader” and other highway equipment

Goodman: told Clark about ENVIRON data, much lower noise measurements, much shorter distances for sound to dissipate. Asked him if he had seen the ENVIRON report.

Clark: told me he had not seen the ENVIRON report.

Goodman-Clark: we spent a few minutes discussed what ENVIRON did and why NPS had not actually measured the DBOC boats and onshore equipment directly.

Goodman: after some back and forth about his amazement of the revelation of where the numbers actually came from, we shifted gears to whether he believed that NPS wanted him to support Alternative A

Clark: "When I was working on my write-up, the Atkins folks told me to remove any hint of policy and leave it to science in my report. Somewhere in a phone call I came to believe that the "Park wanted Alternative A" (even though it was not specified as such in the DEIS), and that Alternative A was the "likely outcome."

Goodman: I told Clark about the history of NPS, concerning Point Reyes National Seashore, having continually pushed false data and misrepresented the data over a five-year period, that this was just the latest example.

Clark: "I don't agree with you" about "NPS. I have worked with them on acoustic imprints in Glacier Bay National Park." The acoustic scientists at Fort Collins are good. "But I don't need to weigh in on their character."

Goodman: pushed Clark on whether his conclusions in his peer review would change given where the NPS numbers came from, and the real numbers from ENVIRON.

Clark: he went back and forth. He stated: "human activities do change the acoustic soundscape. It is not a matter of whether there is an impact." Clark told me that any amount of human noise, no matter how little, was by definition a human impact.

Goodman: asked Clark specifically about the impact on wildlife, and his conclusion that the NPS data were robust and compelling and showed a major impact on wildlife.

Clark: "I am not in agreement with the National Park." Given what you've told me about the numbers in Table 3-3 and the ENVIRON report, I would conclude that there is "no biological impact of the oyster farm on wildlife."

"That is not good."

"Yes, I was led to believe these tables were from field activities of DBOC."

"I was deceived."

"I thought the tables that I was asked to evaluate represented DBOC measurements."

Goodman: asked Clark if he had ever been involved in something like this before.

Clark: yes, something "worse," the Navy sonar marine mammal impacts. There was a lot of "public emotions." "I was sued five times."

Goodman: What do you think of this situation?

Clark: "I'm from Cape Cod. We have oyster beds. I like oysters." Clark then got off onto a tangent of wind and wind noise, wind noise affecting measurements, something

about a study he is doing on wind noise.

Goodman: Why do you think they did this?

Clark: Answered a question with a question. “Why is the Park Service doing something this stupid? Why? Why are folks in Washington doing this? Do they have another agenda? This looks like a stupid political agenda.” Clark then commented that this would come back to bite them, that folks would get caught doing something stupid like this.

Clark: as we ended conversation, he commented that in his “original review” he was asked “is there evidence” for impacts on wildlife, and “I thought okay – they [NPS] have made the right measurements” and their measurements support an impact on wildlife.

APPENDIX #2: Emails between Dr. Corey Goodman and Dr. Christopher Clark on Tuesday March 20, 2012 and Wednesday March 21, 2012

From: Corey Goodman <corey.goodman@me.com>
Subject: time sensitive request
Date: March 20, 2012 9:54 AM PDT
To: Christopher W Clark <cwc2@cornell.edu>

Dear Chris,

My name is Corey Goodman. I am an adjunct professor at UCSF and a managing partner at venBio LLC. You might know me as the graduate advisor of David Lin in your department, an old friend of Ron Hoy, and a neuroscientist and member of the National Academy of Sciences.

I write concerning your review of the soundscape in the draft EIS for Drakes Estero as part of the Atkins final report released yesterday by the Department of the Interior.

I have reviewed your comments, find them very interesting, and would like to go over them with you. I would like to better understand your review and comments. It is a time sensitive matter. Please call me on my mobile phone at 650 922-1431. If you can't get me by phone, please email me and tell me how to reach you.

Thanks very much.
Best,
Corey

From: Christopher W Clark <cwc2@cornell.edu>
Subject: Re: time sensitive request
Date: March 20, 2012 7:05:06 AM PDT
To: Corey Goodman <corey.goodman@me.com>

Corey,
Interesting to learn that my comments to Atkins re that EIS made it back to CA and you!
Are you involved in that EIS evaluation process, or how are you involved with the EIS or Drakes Estero?

Right now literally, I am finalizing my text on an NSF SRN proposal re wind energy research, which has to be completed by COB today. Could this call wait until tomorrow or Thursday morning?

Cheers,
Chris

From: Corey Goodman <corey.goodman@me.com>
Subject: Re: time sensitive request
Date: March 20, 2012 7:12:04 AM PDT
To: Christopher W Clark <cwc2@cornell.edu>

Chris,

Thanks very much for your rapid reply. I completely understand your crazy day -- mine is the same. But I need you for only five minutes today -- I promise no more than five. We can go over the rest of it in detail tomorrow or Thursday.

Best,

Corey

From: Christopher W Clark <cwc2@cornell.edu>
Subject: Re: time sensitive request
Date: March 20, 2012 7:29:10 AM PDT
To: Corey Goodman <corey.goodman@me.com>

How about tomorrow morning at 08:00 PT, 11:00 ET my local??

From: Corey Goodman <corey.goodman@me.com>
Subject: time sensitive request
Date: March 20, 2012 7:56 AM PDT
To: Christopher W Clark <cwc2@cornell.edu>

Okay! I'll call you tomorrow morning at 8 am PT = 11 am ET. In case I don't get thru, my number is 415 663-9495.

Corey

From: Christopher W Clark <cwc2@cornell.edu>
Subject: Re: time sensitive request
Date: March 20, 2012 7:57:48 AM PDT
To: Corey Goodman <corey.goodman@me.com>

Good enough!
Chris

From: Corey Goodman <corey.goodman@me.com>
Subject: Re: time sensitive request
Date: March 21, 2012 8:07:10 AM PDT
To: Christopher W Clark <cwc2@cornell.edu>

Chris,
For our conversation, please take a look at this PDF and we can talk thru it page by page.
Thanks.
Best,
Corey

Enclosure: "soundscape review.pdf"

From: Christopher W Clark <cwc2@cornell.edu>
Subject: Re: time sensitive request
Date: March 21, 2012 12:40:06 PM PDT
To: Corey Goodman <corey.goodman@me.com>

Corey,
Thanks for the informative and enlightening discussion. I've had three calls so far all asking the same basic question as to whether the reality of where the measurements came from or the inappropriate and significantly higher noise level values (from NJ!) change my opinion as to the fundamentals of the EIS. Scientifically they would in the sense that the acoustic footprints of individual anthropogenic activities would be significantly smaller than assessed from the values in Table 3.3, but not in terms of interpreting the report's overall presentation and conclusion, which is that DBOC activities do have a measurable acoustic influence on the acoustic scene in Drakes Estero. That said, I do not believe that these activities have a biologically significant impact on wildlife, but that was not something I was asked to comment on.

I did cross-check with one of my research scientists who received his phd from MIT on human acoustic perception, and he confirmed that 79 dBA at 50' (which is approximately 103 dBA re 1 microPascal at 1 meter) is an appropriate level for a the kinds of sources listed in the New Jersey table.

So for the two motorboat sound levels, they too seem to have arrived in the EIS table from the New Jersey shore - correct?

Cheers,
Chris

From: Corey Goodman <corey.goodman@me.com>
Subject: Re: time sensitive request
Date: March 21, 2012 12:45:27 PM PDT
To: Christopher W Clark <cwc2@cornell.edu>

Chris,
On a call, so I'll be brief. (can write more later)
The motorboat numbers come from NJ police boats, not DBOC.
The equipment numbers comes from road construction equipment, not DBOC.
The real numbers from ENVIRON are much lower for the DBOC boats and equipment,
by one to three orders of magnitude.
Is that what you wanted?
Best,
Corey

From: Corey Goodman <corey.goodman@me.com>
Subject: Re: time sensitive request
Date: March 21, 2012 12:50:38 PM PDT
To: Christopher W Clark <cwc2@cornell.edu>

Chris,
Why weren't you given the ENVIRON analysis submitted to NPS on December 9
showing the actual noise levels 12-825 fold lower than what you were given?
Interesting question.
Corey

From: Christopher W Clark <cwc2@cornell.edu>
Subject: Re: time sensitive request
Date: March 21, 2012 1:00:17 PM PDT
To: Corey Goodman <corey.goodman@me.com>

[responding to March 21, 2012 12:45:27 PM PDT email from Goodman]
Yes, and this is what I thought re motorboats, but wanted to be sure.
Cheers,
chris

From: Christopher W Clark <cwc2@cornell.edu>
Subject: Re: time sensitive request
Date: March 21, 2012 1:05:30 PM PDT
To: Corey Goodman <corey.goodman@me.com>
[responding to March 21, 2012 12:50:38 PM PDT email from Goodman]
I'll ask?

From: Corey Goodman <corey.goodman@me.com>
Subject: Re: time sensitive request
Date: March 21, 2012 1:10:18 PM PDT
To: Christopher W Clark <cwc2@cornell.edu>

Chris,
One thing that confuses me. The real numbers are 1-3 orders of magnitude less than what NPS claimed in the bogus data they sent you. If you say that your overall conclusion would still be the same, then do you have a zero tolerance for any noise? This is a permitted oyster farm that has been there for 80 years. Who are they bothering? Not the wildlife.
Corey

From: Corey Goodman <corey.goodman@me.com>
Subject: Re: time sensitive request
Date: March 21, 2012 1:33:02 PM PDT
To: Christopher W Clark <cwc2@cornell.edu>

Chris,
Take a look at this. I just included on pages 11-13 the report from ENVIRON. I've also included their entire report.
Corey

Enclosures: "soundscape review.pdf" (revised from 8:07 am version)
"FINAL Comment Report DEIS_12-9-11 ENVIRON.pdf"

From: Christopher W Clark <cwc2@cornell.edu>
Subject: Re: time sensitive request
Date: March 21, 2012 2:40:44 PM PDT
To: Corey Goodman <corey.goodman@me.com>

Corey,
Thanks for the ENVIRON info. This seems almost all about process and not about substance.

I know why one would use dBA for assessing noise effects and influences on humans.
However, dBA should not be used when assessing potential effects and influences on non-humans: e.g., birds, marine mammals.

Neither the DEIS nor the ENVIRON material realistically deals with the actual sound fields experienced as a result of exposure to the different sources. The "overstated factor" column is cute, but pretty meaningless

actually.

In any case, to me this is really not about the science of absolute or even relative sound fields generated by various machines and things that humans do. There are too many horror stories on that front, and even the blatant ones mostly go unmitigated, unless humans might be harmed (This one is trivial.) Rather, it's about whether or not and just how much society values wilderness. In this case, it really doesn't matter whether the DEIS incorrectly gives 79 dBA or 65 dBA as the sound value for a "Frontend Loader." The issue is really about whether we, or whomever, decide that there are places that should be left alone in every way possible.

If the decision is to allow Drakes to continue operating, then one has to accept the fact that within that National Seashore there will be times and places when one will hear and experience things that are not natural. Furthermore, one also has to accept the fact that even if the decision was to close down the Drake operation, there would still be times and places in the Park when one would hear and experience things that were not natural - like planes from SFO, or the distant rumble of traffic.

So I'm not really sure what all the fuss is about, really. Was this deliberate, or just the result of someone cutting and pasting and not understanding sound, sound levels, dBA etc.? The DEIS did not choose a preferred alternative. What's next?

Cheers,
Chris

From: Corey Goodman <corey.goodman@me.com>
Subject: Re: time sensitive request
Date: March 21, 2012 3:03:28 PM PDT
To: Christopher W Clark <cwc2@cornell.edu>

Hi Chris,

I think you're missing the point. The NPS clearly has a preferred alternative -- A -- they just didn't say so. Everyone involved knows what it is. You've missed many of their press releases and work via their surrogates. You shouldn't have any doubt. They have been trying for six years to convince the community and elected officials that they have scientific data to show environmental harm to wildlife, when they don't. In 2007, then Superintendent Neubacher (who reported to Jarvis) said to the County Supervisor that NPS had overwhelming data of harm to harbor seals. That is what triggered Kinsey calling in me and Senator Feinstein. Jarvis and Neubacher dug in rather than admit their mistake.

Their false claims have triggered reviews by the Interior IG, NAS, Solicitor's office, etc. They've been shown to have misrepresented their own data, to have used data from other places (Japan) as if it was data from Drakes Estero (sound familiar?), and to have been guilty of violating the NPS Code of Scientific and Scholarly Conduct. They've told Washington and the local community that they have scientific data. Their EIS actually has very little data.

About the only so-called data in the EIS are the acoustic data, and now you see that those are not Drakes Estero data, but rather New Jersey and Washington DC data of little relevance. You have inadvertently become involved in what is a metaphor for a big political mess -- NPS misuse of science. So you may think that this shouldn't be about scientific data, but in fact it is. They really don't have the legal basis to simply make the decision you think they can make -- they have been instructed to make it according to measures of environmental harm. There are numerous mandates from the Senate on this one.

You need to know about the Congressional mandates. Feinstein put into the Senate Appropriations Act in 2010 (I told you this has been going on for some time, and invoking many on both sides of the aisle in both houses of Congress) that they should extend the lease for 10 years after an EIS, and that the EIS should follow the NAS conclusions. The EIS did not follow the NAS study, but rather said it was not relevant in one sentence. That led to the Senate Interior Appropriations Act of 2012 (signed by the President right before Xmas) saying that the NAS should do a study of the science in the EIS (presumably paid for by Interior). Your peer-reviewed study is controversial because it is in place of the Congressionally mandated NAS study. So welcome to the politics.

My advice is that you should stay out of the politics, unless you want to learn more than you now know. It is complicated, and doesn't look good for NPS. Instead, to keep yourself clean, you should stick to the data. That is your expertise. That is what you were asked to review. You were deceived. You were shown data from other equipment and other places and told it was from Drakes Estero. The really numbers are apparently much lower. End of story. Of course, if asked, the acoustic numbers don't indicate any harm to wildlife.

All you need to do is tell the truth about the data, and let others worry about the political and legal situation. What seems simple or straight forward to you is much more complicated, and I do not profess to be a pro on it. I, like you, am a scientist, and simply look at data as asked by our elected officials.

Best,

Corey

From: Corey Goodman <corey.goodman@me.com>
Subject: Noise Unlimited 1995 study ... amazing
Date: March 22, 2012 9:47:48 AM PDT
To: Christopher W Clark <cwc2@cornell.edu>

Chris,

I finally found the 1995 Noise Unlimited study that was cited for the DBOC 20 and 40 hp oyster boat noise measurements at 50 feet.

The purpose of the study was to measure noisy speedboats on the New Jersey shore to set sound limits. The 71 dBA measurement came from a 1993-1995 Kawasaki jet ski 750 CC, 2-stroke, 70 HP engine at 2 feet.

I am speechless. This is a level of deception the likes of which I have never seen. The 71 dBA measurement was from an old very loud jet ski.

You suggested in your report that perhaps the oyster company boats and equipment made more noise in 2012 than in 1995, and you recommended a "sound source verification." Chris -- just the opposite.

What do you think now about the "data" the NPS gave you to analyze, and released the public and elected officials to represent the oyster farm soundscape in Drakes Estero? A 1993-1995 750 CC 2-stroke jet ski and large Federal highway construction equipment.

Corey

Enclosure: "1995 New Jersey Noise Study.pdf"

Dr. Clark never responded. As of March 22, he never emailed or answered me again.