

Environmental Action Committee of West Marin

~ Protecting West Marin Since 1971 ~

April 2, 2012

Dr. Ralph Morgenweck
Scientific Integrity Officer, U.S. Interior Department
1849 C Street, N.W. Washington, D.C. 20240

Re: Dr. Corey Goodman's Bogus Claims of Scientific Misconduct

Dear Dr. Morgenweck:

The Environmental Action Committee of West Marin (EAC) believes that truth and integrity must comprise the essential foundation for scientific inquiry and policy decisions. EAC reviewed Dr. Corey Goodman's most recent claims of scientific misconduct and bias by the National Park Service (NPS). We are particularly concerned about the recent claims both because of the manner in which they have been politicized by Senator Feinstein, and, like previous ones, are baseless, unscientific, and distract from the real issue facing Secretary Salazar: whether to uphold long-standing national park laws and policies, or roll them back to allow private industry to commercialize the heart of a national park.

Dr. Goodman recently alleged that the Draft Environmental Impact Statement (DEIS) fudged the sound level numbers in assessing human-created noise impacts made by the Drakes Bay Oyster Company (DBOC), and thus demonstrates that the NPS was biased. Our analysis shows that the opposite is true.

The NPS used best available data to represent the noise levels of DBOC's motor boats and other equipment. These representative values are reasonable, understate the actual DBOC noise level impacts, and directly contradict Dr. Goodman and Senator Feinstein's unfounded allegations of NPS misconduct.

Dr. Goodman's recent accusations are highly inflammatory and apparently designed to undermine the findings of the DEIS. For example, he alleges that the NPS used jet ski data

from a 2005 study to represent the noise level of DBOC motor boats. But, as our review shows, their claims overstate and misrepresent the easily obtainable facts that support the DEIS.

Overall, our analysis shows that the NPS's DEIS:

- i. Produced a significantly conservative noise figure to represent DBOC's boats by using library data of a boat that most closely represents DBOC boats and then cut that library noise in half in the DEIS;
- ii. Did not analyze several DBOC noise sources such as sewage pumps and delivery trucks because DBOC did not provide that information; and
- iii. Used appropriate, standard terminology to describe the sources of sound data.

DBOC's international consultant, ENVIRON, seems to have designed an acoustic test and produced data to disguise DBOC's true noise impacts and violations. **The data choices of DBOC's consultants are unreasonable, violate standard testing procedures, and understate the significant DBOC-created noise impact on Drakes Estero wilderness.**

Overall, our analysis shows that virtually every one of the ENVIRON study report assertions understates DBOC's operational noise impacts on Drakes Estero.

ENVIRON:

- 1) Tested DBOC boats at docking speed instead of the full-throttle test for speeds actually used in the Estero. Even with this prejudice, both DBOC boats failed to meet NPS regulations that limit noise to 60 decibels;
- 2) Tested the DBOC Front-end Loader up-wind from the noise source, yet every test showed a decibel violation; its test of the DBOC impact tool showed repeated violations, one test being four times louder than NPS regulations allow;
- 3) Disguised these violations by "averaging" them down. According to the ENVIRON noise measurement methods, DBOC could be setting off dynamite once a day, and such short but brief violence could be "averaged away" in 24 hours so that the "average" remained below the NPS 60 decibel limit; and
- 4) Used a noise library data figure that almost doubles the natural background sounds against which the human-caused noise is measured, and then suggested adding airplane noise as a natural background sound to that inflated figure.

While it is unclear how he obtained a non-public, internal agency working draft of the DEIS, enough tax-payer money has already been wasted investigating false charges by Dr. Goodman against the NPS. EAC's analysis is intended to shine the light of day on the new round of specious assertions and bogus science used by those repeatedly making deceptive charges against the NPS in an effort to overturn the 1976 wilderness designation for Drakes Estero, the ecological heart of Point Reyes National Seashore.

We urge you, in reviewing Dr. Goodman's claims of scientific misconduct, also to consider the concerns we raise here regarding his and ENVIRON's representations.

Thank you very much for your consideration of our analysis, and for upholding scientific integrity throughout this public process.

Respectfully submitted,

A handwritten signature in black ink that reads "Amy Trainer". The signature is fluid and cursive, with a long horizontal line extending to the right.

Amy Trainer, Executive Director

Environmental Action Committee of West Marin

Cc: Honorable Ken Salazar, Secretary, U.S. Interior Department

Dr. Gary Machlis, Science Advisor to NPS

Honorable Dianne Feinstein, U.S. Senator for California

Honorable Barbara Boxer, U.S. Senator for California

Honorable Lynn Woolsey, U.S. Congresswoman for California's 6th District

Dr. Ralph J. Cicerone, President of the National Academy of Sciences and Chair of the National Research Council

Dr. Susan Hackwood, Executive Director, California Council on Science and Technology

DETAILED COMMENTS FOLLOW:

NPS'S DEIS ANALYSIS IS BIASED IN FAVOR OF DBOC BECAUSE IT DID NOT CONSIDER OR ANALYZE SIGNIFICANT SOURCES OF DBOC-MADE NOISE.

The NPS relied on DBOC providing information on all of their noise-inducing sources for analysis in the NPS DEIS. However, we have uncovered a significant DBOC-caused error: DBOC did not provide all the information necessary for the NPS analysis in the DEIS and thus the DEIS underestimates the amount of noise induced by DBOC's operations, creating a bias that benefits DBOC.

The DEIS did not include representative noise impacts from the DBOC air compressor, the refrigeration unit, the delivery trucks, the employees cars, the sewage pump, the well pump and the cars of DBOC's claimed 50,000 customers. At 2.5 people per car, that is the sound of 20,000 cars that is missing from the DEIS. It was incumbent on DBOC to provide the noise data on these significant sources of noise. However, DBOC did not provide these items as sources of noise, thus the NPS did not list or analyze these sources of DBOC-caused noise in the DEIS. These missing DBOC noise sources directly contradict Dr. Goodman's accusations of NPS bias and represent a DBOC-caused error in the DEIS that NPS should address in their Final EIS.

ENVIRON AND THE NPS USED THE SAME TERMINOLOGY, YET DR. GOODMAN CHARGED THE NPS COMMITTED SCIENTIFIC MISCONDUCT.

The core of Dr. Goodman's allegation of bias is the NPS use of the term "representative sound level" to describe DBOC noise, yet ENVIRON, DBOC's noise consultants, describe NPS as relying on "a library of sound level data to represent DBOC sources." How can the NPS use of this term represent bias, when the DBOC contractor uses the same term?

Dr. Goodman claims that the NPS should have retained the term "estimated" to describe sound level instead of "representative" ("estimated" is the term apparently used in an earlier draft version¹ of the DEIS. However, to retain the term "estimated" would be inappropriate and misleading because the term "estimated" implies that the sound was taken directly from the DBOC source, which it was not. The NPS change in words suggests an effort to make the document more accurate and to not mislead the public. Dr. Goodman creates a false argument that is not supported by logic or science, and has misled the public and Senator Feinstein to attack the NPS's good science.

Related, Dr. Goodman falsely accuses the NPS of misconduct for its use and display of sound library data. The DEIS Table 3-3 with its "*" marks beside the decibel numbers clearly indicates that the representative motorboat data came from the Noise Unlimited 1995 Study and that the

¹ It is unclear how Dr. Goodman obtained a non-public, internal working draft of the Draft EIS that to date has not been released to the public for review.

other representative DBOC tool data came from the Federal Highway Administration 2006 Study. Contrary to Dr. Goodman's false accusations, the data sources are listed and made clear. These were clearly references to representative sound from a sound library, which is standard practice.

DR. GOODMAN SUPPORTS ENVIRON'S FAULTY METHODS AND ANALYSIS THAT "DECIBELS" EQUAL "LOUDNESS".

Dr. Goodman, DBOC, and ENVIRON propose inappropriate and unscientific analysis in an effort to greatly inflate the magnitude of their unsupported claims of bias against NPS.

Contrary to what Dr. Goodman and the ENVIRON report claim, a ten-fold increase in the number of decibels do not equal a ten-fold increase in the human or wildlife perceived loudness. We humans (and other creatures) have evolved such that our ears can hear a wide range of sounds, from mosquitos to thunderclaps. Our ears do this by dampening the powerful sounds so that they do not harm our eardrums thus retaining our ability to hear quiet sounds. ²

Decibels, in contrast, are a measure of the physical property (power) of a sound wave (e.g. watts per square meter). Because decibels are represented by a logarithmic scale, the difference between 60 decibels and 70 decibels is a difference of 10 times the physical power; similarly the difference between 60 decibels and 80 decibels is a difference of 100 times the physical power. However, our ears dampen this power, so we perceive an increase of 10 decibels (10 times the sound-power) as being only two times as loud. Likewise an increase of 20 decibels (100 times the sound power) is perceived as only four times as loud³.

The purpose of the soundscape section of the DEIS is to assess impacts to park visitors and wildlife. Those impacts are experienced through the ears of those visitors and wildlife and thus must be translated from the test instrument's "decibel scale" to the biological "loudness scale."

Thus throughout our analysis we have used the term "loudness" to represent the perceived differences in the measured decibels. In contrast, ENVIRON uses the raw physical sound power as measured in decibels on the test instrument to (mis)represent perceived impacts.

ENVIRON claims that the NPS figure of 71 decibels (which the DEIS represents as DBOC's boat noise) is **overstated by a factor of 12** ⁴ compared to ENVIRON's DBOC boat noise of 60.1 decibels (because $10^{(7.1 - 60.1)} = 12.3$). But even if the ENVIRON figure of 60.1 decibels for boat noise were correct (which it is not, as outlined below), then the increase from 60.1 to 71 decibels results in

² http://www.tonmeister.ca/main/textbook/intro_to_sound_recordingch6.html

³ <http://www.newton.dep.anl.gov/askasci/eng99/eng99325.htm>

⁴ Environ Report page 36 Table H-1

an increase in loudness of only 2 times, not the 12 times that ENVIRON's decibel calculations imply.⁵ ENVIRON has exaggerated its loudness claim by six times.

Dr. Goodman repeats the ENVIRON misstatement: *"an increase of 10 dB means that the sound is 10 times as loud; i.e., 70 dB is 10 times as loud as 60 dB."*⁶ Dr. Goodman is similarly exaggerating his loudness claims by five times. Other similarly misleading statements are repeated throughout Dr. Goodman's letter and the ENVIRON DEIS comment. For example, the representative decibel number in the DEIS for the oyster tumbler is 79. ENVIRON claims that the number should be 49.8 and thus the DEIS has "Overstated Factor" of 825.⁷ Even if ENVIRON's figure of 49.8 were correct (we believe it is not), the difference is 7.5 times in perceived loudness, not 825 times in sound power. ENVIRON and Dr. Goodman⁸ have overstated this claim by over 100 times.

Such analyses based on decibel differences are misleading, contrary to psycho-acoustician standards, inconsistent with the purposes of the DEIS, and greatly inflate the magnitude of ENVIRON's and Dr. Goodman's misleading claims.

NPS'S DEIS ANALYSIS OF THE ESTERO'S AMBIENT NOISE LEVEL IS BIASED IN FAVOR OF DBOC .

The NPS Director's Order #47 states (emphasis ours): *"With respect to determinations related to the impacts of sound on the park soundscape, the natural soundscape is the 'affected environment'.... the natural soundscape...is comprised of the natural sound conditions in a park which exist in the absence of any human-produced noises."*

However, the DEIS sets the baseline ambient noise level at 34 decibels per the Ambient Noise Study's "Existing Ambient" Summer Daytime figure of 33.8 decibels⁹, which includes (emphasis ours) *"The composite, all-inclusive sound associated with a given environment, excluding only the analysis system's electrical noise (i.e., aircraft-related sounds are included)."*¹⁰

Thus the DEIS overstated the baseline, which should have been the "Natural Ambient" figure of 32.¹¹ This DEIS error benefits DBOC whose noise impacts are thus compared to an inflated baseline. This wrongly inflated baseline measurement reduces the impact of DBOC-created noise.

⁵ <http://www.sengpielaudio.com/calculator-levelchange.htm>

⁶ <http://oysterzone.wordpress.com/2012/03/27/03-26-12-nps-used-falsified-acoustic-data-to-deceive-public-an-peer-review-of-deis/>

⁷ Environ DEIS Comment page 36

⁸ PPT Slide 27

⁹ http://www.nps.gov/pore/parkmgmt/upload/planning_atmp_background_report_faa_baseline_ambient_sound_levels_1103.pdf Table 2 Page ES-23 Second decibel column fourth decibel line

¹⁰ Ibid pg. Page ES-20

¹¹ Ibid Table 2 Page ES-23 Last decibel column; fourth decibel line

This directly contradicts Dr. Goodman’s accusations of NPS bias and is a significant DEIS error that the NPS will need to correct or justify in its Final EIS. Correcting this will presumably significantly increase DBOC’s noise impact on the natural soundscape.

DR. GOODMAN, DBOC, AND ENVIRON PROPOSES A BIASED AMBIENT NOISE LEVEL THUS PRODUCING A FAULTY IMPACTS ANALYSIS.

Dr. Goodman, DBOC, and ENVIRON propose faulty scientific analysis and methodologies that disguise DBOC’s noise impacts to park visitors and wildlife. This is done by inappropriately inflating background noise levels so that when compared to DBOC’s noise levels, the impacts are reduced. This approach to deceive the public is revealed and dissected here.

ENVIRON first asserts¹² that 40.3 decibels, which is the summer average (L_{eq}) daytime “existing ambient” sound level from Ambient Noise Study¹³ is the proper metric, whereas the DEIS uses the median (“ L_{50} ”). ENVIRON then suggests (without any rationale) that the winter average of 41.6 is an even better metric. Although ENVIRON liberally quotes from the NPS Director’s Order 47 when it believes the Order supports its rationalizations, here ENVIRON is strangely quiet when asserting baselines for ambient noise that are explicitly contradicted by the plain language of the NPS Director’s Order. This is “baseline shopping” whose only (unstated) rationale is to benefit ENVIRON’s client (by disguising DBOC’s impacts to park visitors and wildlife).

The following example shows the importance of using the 32.2 decibel summer median “natural ambient” not the 41.6 winter average “existing ambient.” Assume three tests in July produce “natural ambient” test results of 31, 31, and 32.2. Three tests in January produce test results of 32.2, 36, and 87.2 (the last because of storm conditions). The median (mid value of all 6 tests) is 32.2, but the average is 41.6 or about 75% louder.¹⁴ Most visitation occurs when the howling wind is not blowing rain sideways.¹⁵ But the ENVIRON method would average up (inflate) high-visitation times with a portion of those howling-storm events. So in this example, a visitor present during five of the six tests would hear a distant DBOC motor boat at 40 decibels above all the existing natural ambient sound levels of 31, 31, 32.2, 32.2, and 36. Yet ENVIRON de facto claims the preponderance of visitors in benign weather would not hear the boat at 40 decibels because ENVIRON’s theoretical baseline (41.6) is louder than the boat noise (because ENVIRON’s baseline is “averaged up” with the storm event when there is little visitation).

ENVIRON’s attempt to minimize its client’s impacts (by inflating the baseline by which those impacts are measured) is a variation of the strategy attempted by the U.S. Air Tour Association

¹² ENVIRON DEIS Comment page 34 and 35

¹³ http://www.nps.gov/pore/parkmgmt/upload/planning_atmp_background_report_faa_baseline_ambient_sound_levels_1103.pdf First decibel column, fourth decibel line

¹⁴ <http://www.sengpielaudio.com/calculator-levelchange.htm>

¹⁵ http://www.nps.gov/pore/parkmgmt/upload/planning_atmp_background_report_faa_baseline_ambient_sound_levels_1103.pdf page5

arguing against NPS proposed limitations on air tours over Parks. The Association argued that the impact of noise from air tours, which only occur during daylight hours, should nevertheless be measured over a 24-hour cycle (i.e. the impact should be “averaged down”). In 2002, the U.S. Circuit Court of Appeals denied the U.S. Air Tour Association’s challenge to the Air Tour Limitation Rule.¹⁶ ENVIRON, as a claimed profession in this field, must surely know this case, yet it attempts the same unacceptable “averaging.”

Furthermore, ENVIRON suggests that adding traffic noise from nearby Sir Francis Drakes into the background noise at the DBOC plant would be a better baseline from which to measure DBOC plant noise than the NBPS study site at the Estero bluff.¹⁷ However, as noted, this suggestion is in direct violation of Director’s Order 47 that mandates the “natural ambient noise” as the proper DEIS baseline. ENVIRON also presents no evidence to support its implied claim that the “natural ambient noise” at the DBOC plant location near Sir Francis Drakes would be higher than that at the Estero location of the DEIS. Contradicting this implication, the DEIS baseline Sound Study indicated that the “natural ambient” summer daylight sound level at the Bear Valley Visitor Center, which is about the same distance from a busier section of Sir France Drakes, is less (31.3) than that measured at the Estero bluff (32.2)¹⁸

ENVIRON’s above actions are, of course, exactly what consultants do for their clients and we believe that it is fair to characterize ENVIRON’s ambient noise analysis as biased in DBOC’s favor.

The usefulness to DBOC from an inflated background noise baseline is clear from Dr. Goodman’s theoretical calculation¹⁹ that harbor seals cannot be flushed by DBOC boats because the seals cannot hear the motor above the background sounds when the boat is more than 400 feet away. He uses the underestimated (see later discussion) ENVIRON boat figure of 59 decibels at 50 feet and the inflated background winter average noise level of 42 decibels (that already includes human noises) and then uses the laboratory acoustic formula:

$$\text{Boat @ 59 dBA} - 20 \times \log (400 \text{ feet}/50 \text{ feet}) = 41 \text{ dBA (vs. ambient at 42 dBA)}$$

Thus, Dr. Goodman concludes (incorrectly) that the seals cannot hear DBOC’s (underestimated) motorboats at 400 feet (41 decibels) over the (inflated) background noise at 42 decibels. However, NPS has a video of seals flushed by DBOC boats at a distance of about 2400 feet. The Marine Mammal Commission confirms this disturbance in their report (pg. 27), stating *“The combination of video and still photography provides convincing evidence of seal disturbance that likely was caused by the sound of the boat as it left OB and moved up the west channel (a distance of hundreds of meters)”*. Dr. Goodman’s calculation using ENVIRON’s biased numbers is clearly wrong.

Conversely, using the NPS numbers of 71 decibels representing the boat noise and 32 decibels for the correct (natural) ambient noise, the laboratory calculation to estimate whether the seal could

¹⁶ Washington, D.C. Circuit Court of Appeals in the case of United States Air Tour Association v. FAA, 298F.3d997

¹⁷ ENVIRON DEIS Comment page 35

¹⁸ DEIS Ambient Study pg. ES-23 last column

¹⁹ 1/13/12 Dr. Goodman Letter to Supervisor Kinsey, page 23

theoretically hear the boat over the ambient noise is as follows: *Boat @ 71 dBA – 20 X lob (2400 feet/50 feet) = 37.4 dBA (vs. ambient at 32 dBA)* Thus the seals could indeed hear the boat noise.

NPS USED REASONABLE BOAT NOISE DATA, THUS PRODUCED A SCIENTIFICALLY SOUND IMPACT ANALYSIS.

Dr. Goodman claimed ²⁰that the NPS, in the absence of on-site test data, “*Included noise measurements from a 1995 Kawasaki 750 cc 2-stroke 70 HP Jet Ski at 2 ft as if the data came from a DBOC 4-stroke 20 HP oyster boat at 50 ft.*”²¹ However, the Noise Unlimited 1995 Study notes this Jet Ski measurement was taken in a stationary position at idle speed from 2 feet, whereas pass-by tests are done moving at full throttle at 50 feet.²² If NPS were trying to bias the result, the choice of the stationary idling Jet Ski from the 1995 Study would make little sense because that test result is the third lowest noise level of the 18 tests in that 1995 Study.²³

We don’t know the NPS selection process, however, we suggest that a more likely process would have been for the DEIS to represent the DBOC boat noise by choosing the pass-by test in the Noise Unlimited Study for the boat most like the DBOC boats. The Noise Unlimited Study measured boat with a 175 horsepower outboard at 81 decibels. However, it appears that NPS chose **conservatively** to have the DEIS represent a sound level that was **half** that loud. That would be a reduction of 10 decibels, resulting in the 71 decibel figure in Figure 3-3 of the DEIS.

Notwithstanding Dr. Goodman’s misleading Jet Ski photo, we believe that the NPS reducing by half the loudness of the most applicable library boat test is much more reasonable than Dr. Goodman’s inflammatory choice (supported by Senator Feinstein) of an accidentally equal decibel from completely different boat at a completely different distance at a completely different speed and throttle.

DR. GOODMAN, DBOC, AND ENVIRON ADVOCATE THAT A BIASED, FAULTY BOAT NOISE ANALYSIS SHOULD REPLACE THE SCIENTIFICALLY SOUND ANALYSIS IN THE DEIS.

- 1) ENVIRON’s photo of its acoustic test ²⁴ of the DBOC boat (below left) reveals that the DBOC boat is moving so slowly that its wake is hardly visible. Harbor seals flush from the

²⁰ Letter to Secretary Salazar page 2

²¹ Letter to Secretary Salazar page 2

²² Noise Unlimited page 1

²³ Noise Unlimited 1995

²⁴ Environ Noise Attachment page 4

noise of DBOC boats²⁵, which customarily move at high speeds in the Estero as seen in numerous NPS photos of DBOC boats in operation with broad white wakes (see below at right)²⁶. ENVIRON's slow-speed sound test is not representative of actual DBOC boat impacts on wildlife and park visitors.



Photo 5. Boat Passby



Such a slow-speed test is not the standard pass-by test, which as the 1995 study indicates is typically done: “*with the boat operating at full throttle.*”²⁷ Pass-by tests have shown that higher speeds significantly increase decibels.²⁸ ENVIRON should understand this standard pass-by testing procedure and thus we believe its non-representative slow speed boat test is attempt by either ENVIRON or DBOC or both to mislead NPS and the public.

- 2) ENVIRON Table H-1 Footnote ^a “interprets” the DEIS sound levels to be averages (L_{eqs}), when in fact, as is clear from the Noise Unlimited (#3 Discussion) and the FHWA Table 1 column 4 title, these DEIA sound levels are maximums(L_{max}). This “misinterpretation” (in the face of clear contrary evidence) then allows ENVIRON to make a misleading comparison. The “Overstated Factor” compares DEIS maximum levels to DBOC’s average levels, an apples-to-oranges comparison that overstates the difference. For example, the Noise Unlimited maximum figure representing the DBOC boat is 71 decibels. The ENVIRON maximum for DBOC Boat 1 is 63.4 and the average is 60.1 decibels. ENVIRON calculated its “Overstated Factor” by falsely comparing 71 with 60.1 instead of with 63.4. Then ENVIRON compounds this misleading comparison by measuring the difference in sound power rather than perceived loudness. Comparing like-to-like (even assuming the ENVIRON boat test is correct, which it is not as already explained) , then the claimed “Overstated Factor” is 8+ decibels or an overstatement of 0.8 times in maximum perceived loudness, not ENVIRON’s 12 times in unperceived equalized decibels.

²⁵ November 2011, U.S. Marine Mammal Commission Report on Drakes Estero Harbor Seals, pg. 27.

²⁶ http://www.nps.gov/pore/readingroom/Photos/2008/UEF/03_March/11/PM/2008-03-11%2003-19-13%20PM%20T.JPG

²⁷ Noise Unlimited 1995, page 1

²⁸ FHWA 1980 at <http://www.nonoise.org/library/highway/traffic/traffic.htm>

- 3) ENVIRON's photo of the boat test²⁹ shows that this test was at 90 degrees from the prevailing wind. Although the prevailing wind on a regional scale is from the northwest, the topography of the Estero traps the wind such that it blows down the Estero from north to south. The photos show the testing equipment roughly due east of the boat, which will understate the measured levels and understate the resulting impacts.

Furthermore, the DEIS estimates of noise impact in the Estero (Figures 4-1 and 4-2) assume mathematically perfect spherical extent of DBOC noise that ignores the steady wind that blows from the top to the bottom of the Estero (north to south) and the topography of the Estero whose surrounding cliffs reflect and funnel noise. Accounting for the wind and topography would extend the impact from the oyster plant, including nearby boats, further down Schooner Bay.

Lastly, the DEIS correctly points out that boat noise impacts measured underwater are likely to be much greater than boat noise impacts measured in the air, yet NPS has no underwater measures. This greatly understates DBOC boat noise impacts on harbor seals, whose underwater mating and feeding behaviors could be impacted by DBOC boat noise even if the impact from that noise may not be visible on harbor seals that are hauled out-of-the-water on sandbars.

- 4) ENVIRON's 62 data points³⁰ appears more of a small-sample estimate than a robust test, given that the NPS Ambient Study had two months of data vs. ENVIRON's 62 seconds of data. Additionally the ENVIRON test provides no data or description of the ambient tests that are supposed to precede and follow the test of the equipment. If, for example, one of the intermittent noise sources at the DBOC plant were off during the test of the target equipment, but then on during the test of the ambient noise, then this would result in an underestimate of the targeted equipment's noise impact.
- 5) ENVIRON's own data (63.4 and 61.7 Lmax for DBOC boats 1 and 2 respectively) demonstrate that both violate 36 CFR 2.12, which states: "*The following are prohibited...Operating motorized equipment...That exceeds a noise level of 60 decibels measured on the A-weighted scale at 50 feet.*"³¹
- 6) ENVIRON's biased test builds the foundation for Dr. Goodman to mock the NPS by accusing that NPS "*Included noise measurements from a 1995 Kawasaki 750 cc 2-stroke 70 HP Jet Ski at 2 ft as if the data came from a DBOC 4-stroke 20 HP oyster boat at 50 ft.*"³² Dr. Goodman then quotes from the Noise Unlimited 1995 Study: "*That measurement of 71 dBA is at the 'static level dBA.'*"³³

²⁹ ENVIRON DEIS Comment Attachment page 4

³⁰ ENVIRON Attachment page 6

³¹ <http://www.gpo.gov/fdsys/pkg/CFR-2010-title36-vol1/pdf/CFR-2010-title36-vol1-sec2-12.pdf>

³² Letter to Secretary Salazar page 2

³³ Letter to Secretary Salazar page 5

But, the purported quote (“static level dBA”) does not exist in the 1995 study. Instead, the Study notes this measurement was taken at idle speed from 2 feet in accordance with the “Stationary Sound Level Measurement Procedure.”³⁴ Contrary to Dr. Goodman’s purported quote, it is the boat that is “static” and “stationary” not the “dBA.” But the word “stationary” never appears in Dr. Goodman’s letter. Instead, “idle speed” is glossed over and the “2 feet” reference is repeated.

The photos below are from Dr. Goodman’s power point.³⁵ The photo of the Jet Ski on the left depicts the condition that Dr. Goodman asserts the NPS test represented. The photo on the right depicts the condition that Dr. Goodman implies the DBOC boats actually represent. Neither of Dr. Goodman’s representative photos is true. Dr. Goodman’s slight-of-hand deceived the local public radio news editor who stated, “*Dr. Goodman believes that the high oyster boat measurement of 71 decibels was based on a jet ski taken at a distance of only 2 feet.*”³⁶ The Editor made no mention of “stationary” or “idle.”

However, even the stationary figure for a Jet Ski would make no sense if NPS were trying to bias the result. The stationary idling Jet Ski tested the third lowest of the 18 boat tests in the 1995 Study.³⁷ Furthermore, the pass-by test is customarily done at full throttle, which almost always results in more noise than do static tests. This too contradicts Dr. Goodman’s claims of NPS bias.



Acoustics is a complex scientific issue and the public’s understanding of this complexity is steamrollered by Dr. Goodman’s inflammatory and invalid use of pictures of full-throttle Jet Skis next to docked DBOC boats. Dr. Goodman claims to have reviewed 281,000 NPS Estero photos³⁸ so he surely knows that they contain numerous photos of DBOC boats

³⁴ Noise Unlimited page 1

³⁵ <http://oysterzone.files.wordpress.com/2012/03/nps-deis-and-atkins-review-soundscape-deception-9-2mb.pdf>

³⁶ <http://kwmr.org/blog/show/2042> at

³⁷ Noise Unlimited 1995

³⁸ Dr. Goodman to Supervisor Kinsey page 8: “281,000 photos over a three and a half year period show

operating at high speed. Dr. Goodman did not disclose that information and instead offered the misleading photo of the docked DBOC boat. Ironically, Dr. Goodman's photo of the racing Jet Ski appears much more comparable to the photo we provided earlier in this document of a DBOC boat speeding through the Estero.

- 7) **SUMMARY:** As shown in the analysis above, Dr. Goodman's claims do not hold up under modest scrutiny. There is evidence that both ENVIRON and Dr. Goodman are attempting to mislead the NPS, Senator Feinstein, and the public that is unfamiliar with standard acoustic testing protocols.

DR. GOODMAN, DBOC, AND ENVIRON USE A FAULTY, BIASED FRONT END LOADER ANALYSIS TO CRITICIZE THE DEIS.

Our analysis of the front loader noise test contradicts Dr. Goodman's claims of NPS bias and shows how even ENVIRON's incorrect testing - biased in favor of DBOC by underestimating DBOC noise - produces noise levels that violate NPS regulations. In contrast, the analysis below provides sufficient evidence that both ENVIRON and Dr. Goodman are attempting to mislead NPS and the public that is unfamiliar with acoustic testing.

- 1) Front Loaders do not leave wakes like boats, so it impossible to tell if the ENVIRON pass-by test was done under normal operating conditions. Since the boat test was supposed to be done at full throttle, but was not, it may be reasonable to assume that the front loader was also not operating as it would normally.
- 2) ENVIRON compares DEIS maximum levels with ENVIRON average levels and then states that comparison in terms of sound power rather than perceived impact. ENVIRON Table H-1 states that the "Overstated Factor" for the Front Loader is 25. Comparing like-to-like (even assuming the ENVIRON test is correct, which we believe it is not), then the claimed overstated factor is 11 decibels or an overstatement of 2 times in maximum perceived loudness, not ENVIRON's 19 times in unperceived equalized decibels.
- 3) ENVIRON Photos of the front loader tests³⁹ show that the test was done up-wind. Although the prevailing wind on a regional scale is from the West or North West, the topography of the Estero traps the wind such that it blows down the Estero from north to south. The photos show the testing equipment north (upwind) from the front loader, which will understate the measured levels and understate the resulting impacts.

hundreds of examples of DBOC boats coming and going, and not a single time..."

³⁹ ENVIRON DEIS Comment Attachment page 5

- 4) ENVIRON's 120 data points⁴⁰ appears more of a small-sample estimate than a robust test, given that the NPS Ambient Study had two months of data vs. ENVIRON's 120 seconds of data. The reference FHWA library notes its combined result is based on 96 different tests of front loaders.⁴¹ Additionally the ENVIRON test provides no data or description of the ambient tests that are supposed to precede and follow the test of the equipment. If, for example, one of the intermittent noise sources at the DBOC plant were off during the test of the target equipment, but then on during the test of the ambient noise, then this would result in an underestimate of the targeted equipment's noise impact.
- 5) ENVIRON's own data (68 maximum decibels) demonstrate that the front loader violates 36 CFR 2.12's 60 decibel limit⁴²
- 6) ENVIRON's biased tests again lay the foundation for Dr. Goodman to mock NPS's choice from the FHWA noise library (emphasis ours): "*DBOC's Fork Lift at 79 dBA was presumably FHWA's Front End Loader at 79 dBA.*"⁴³ To demonstrate the asserted validity of his mockery Dr. Goodman's PowerPoint shows the DBOC equipment with forks (below left). However, ENVIRON's photo shows the same DBOC equipment with a bucket (below right), which then allows ENVIRON to mock NPS because the DEIS described the DBOC equipment as a "*forklift.*" This is same piece of DBOC equipment.



Yet when equipped with a bucket, it is mocked by ENVIRON as a NPS "forklift", then when equipped with forks, it is mocked by Dr. Goodman as a NPS "front loader." All of this mockery serves to distract the public from the conclusion that NPS use of a representative noise level from the FHWA noise "library" for a "front end Loader" is (contrary to the mockery) a reasonable and seemingly like-to-like comparison. .

- 7) SUMMARY: This analysis of the front loader test contradicts Dr. Goodman's claims of NPS bias and shows how even ENVIRON's incorrect testing to bias DBOC (by underestimating DBOC noise) produces noise levels that violate NPS policies. In contrast, we believe the

⁴⁰ ENVIRON Attachment page 7

⁴¹ http://www.fhwa.dot.gov/environment/noise/construction_noise/handbook/handbook09.cfm

⁴² <http://www.gpo.gov/fdsys/pkg/CFR-2010-title36-vol1/pdf/CFR-2010-title36-vol1-sec2-12.pdf>

⁴³ PPT Slide 26

above analysis provides sufficient evidence that both ENVIRON and Dr. Goodman are attempting to mislead NPS and the public that is unfamiliar with acoustic testing.

DR. GOODMAN, DBOC, AND ENVIRON PRESENT A BIASED AND FAULTY PNEUMATIC DRILL NOISE ANALYSIS.

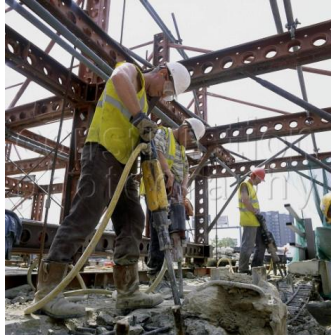
The analysis below of the pneumatic drill noise test contradicts Dr. Goodman’s claims of NPS bias and shows how even ENVIRON’s incorrect testing to assist DBOC (by underestimating DBOC noise) produces noise levels that violate NPS regulations. In contrast, we believe the below analysis provides sufficient evidence that both ENVIRON and Dr. Goodman are attempting to mislead NPS and the public that is unfamiliar with acoustic testing.

- 1) ENVIRON supplies no photos of the drill noise test. We have no way of knowing whether the drill was operating in normal fashion, a possibility that (based on the low-speed boat test) cannot be discounted.
- 2) ENVIRON compares DEIS maximum levels with ENVIRON average levels and then states that comparison in terms of sound power rather than perceived impact. ENVIRON Table H-1 states that the “Overstated Factor” for the pneumatic drill is 29. Comparing like to like (even assuming the ENVIRON test is correct, which we believe it is not), then the claimed overstated factor is 5.3 decibels or an overstatement of 0.4 times in maximum perceived loudness, not ENVIRON’s 29 times in unperceived equalized decibels.
- 3) ENVIRON supplies no photos, so we do not know the position of the test device and the pneumatic drill relative to the prevailing wind. Given that all the other photos show the device and the target equipment up wind or cross wind, we believe it likely to assume that the pneumatic test was done likewise. Such a test will understate the measured levels and the resulting impacts.
- 4) ENVIRON’s 120 data points⁴⁴ appears more of a small-sample estimate than a robust test, given that the NPS Ambient Study had two months of data vs. ENVIRON’s 120 seconds of data. The reference FHWA library notes its combined result is based on 90 different tests of pneumatic tools.⁴⁵ Additionally the ENVIRON test provides no data or description of the ambient tests that are supposed to precede and follow the test of the equipment. If, for example, one of the intermittent noise sources at the DBOC plant were off during the test of the target equipment, but then on during the test of the ambient noise, then this would result in an underestimate of the targeted equipment’s noise impact.

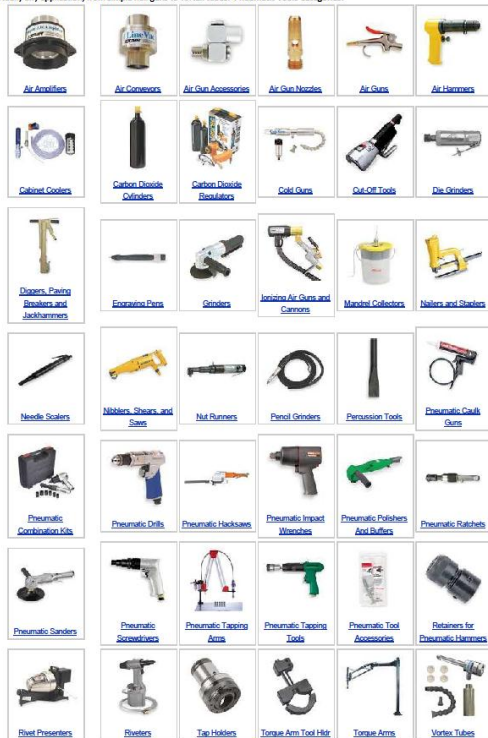
⁴⁴ ENVIRON Attachment page 9

⁴⁵

- 5) ENVIRON’s own data (68 maximum decibels) demonstrate that the DBOC pneumatic drill violates 36 CFR 2.12’s 60 decibel limit⁴⁶
- 6) ENVIRON’s biased tests again lay the foundation for Dr. Goodman to mock NPS ‘s choice from the FHWA noise library (emphasis ours): “NPS DEIS used data from this ...Federal highway construction pneumatic drills 85 dBA ... to misrepresent this: oyster farm pneumatic tool 70 dBA.”⁴⁷ To demonstrate the asserted validity of his mockery, Dr. Goodman’s PowerPoint shows the DBOC tool (left) with a photo of jack hammers.



Pneumatic Tools <http://www.grainger.com/Grainger/pneumatic-tools/pneumatics/ecatalog/N-agt>
 Pneumatic tools are lightweight, yet powerful. We carry hundreds of air guns with various features to match your application. Add an impact wrench to your toolkit for production, manufacturing and assembly environments. Grainger stocks pneumatic tools for virtually any application, from simple nail guns to vortex tubes. Pneumatic Tools Categories:



However, the FHWA list distinguishes “jack hammers” (impact devices) from “pneumatic tools” (non-impact devices). These are different tools with different noise levels. Thus Dr. Goodman has no credible basis for mocking NPS with the claim that NPS demonstrated bias by treating the DBOC “pneumatic tool” as a “jack hammer.”

In contrast, typical pneumatic tools such as represented in the FHWA reference library are like those show in the Grainger catalog in the photo to the left, which are “lightweight”⁴⁸ handheld tools very similar to the DBOC tool.

Dr. Goodman’s false claims distract the public from the correct conclusion that NPS use of a representative noise level from the FHWA noise “library” for a “pneumatic tool” is a reasonable and seemingly like-to-like comparison.

⁴⁶ <http://www.gpo.gov/fdsys/pkg/CFR-2010-title36-vol1/pdf/CFR-2010-title36-vol1-sec2-12.pdf>

⁴⁷ PPT Slide 4

⁴⁸ <http://www.grainger.com/Grainger/pneumatic-tools/pneumatics/ecatalog/N-agt?Ndr=basedimid10071&contextPath=Grainger&sst=subset>

- 7) SUMMARY: This analysis of the pneumatic drill test contradicts Dr. Goodman's claims of NPS bias and shows how even ENVIRON's incorrect testing to bias DBOC (by underestimating DBOC noise) produces noise levels that violate NPS policies. In contrast, we believe the above analysis provides evidence that both ENVIRON and Dr. Goodman are attempting to mislead NPS and the public that is unfamiliar with acoustic testing.

ENVIRON PRESENTED, AND DR. GOODMAN SUPPORTED, A BIASED AND FAULTY OYSTER TUMBLER ANALYSIS.

An analysis of the oyster tumbler noise test contradicts Dr. Goodman's claims of NPS bias. In contrast, the analysis below provides evidence that both ENVIRON and Dr. Goodman are attempting to mislead NPS and the public that is unfamiliar with acoustic testing.

- 1) ENVIRON supplied no photos of the oyster tumbler noise test. The ENVIRON photos do show the oyster tumbler motor which is asserted as the "*primary noise source.*"⁴⁹ Maybe, but a significant amount of noise is generated by the oysters themselves that are being tumbled. Were there oysters in the tumbler during the test? It is unclear from the ENVIRON (lack of) photos. Neither NPS nor the public have any way of knowing whether the oyster tumbler was operating in normal fashion (full of tumbling oysters). The possibility of a non-representative test of the oyster tumbler, based on the low-speed boat test, cannot be discounted.
- 2) ENVIRON compares DEIS maximum levels with ENVIRON average levels and then stating that comparison in terms of sound power rather than perceived impact. ENVIRON Table H-1 states that the "Overstated Factor" for the oyster tumbler is 825 times. Comparing like-to-like (even assuming the ENVIRON test is correct, which we believe it is not), then the claimed overstated factor is 19.6 decibels or an overstatement of 3.9 times in maximum perceived loudness, not ENVIRON's 829 times in unperceived equalized decibels.
- 3) ENVIRON supplies no photos, so we do not know the position of the test device and the oyster tumbler relative to the prevailing wind. Given that all the other photos show the device and the target equipment up wind or cross wind, we believe it likely to assume that the oyster tumbler was done likewise. Such a test will understate the measured levels and understate the resulting impacts.
- 4) ENVIRON's 121 data points⁵⁰ appears more of a small-sample estimate than a robust test, given that the NPS Ambient Study had two months of data vs. ENVIRON's 120 seconds of data. Additionally the ENVIRON test provides no data or description of the ambient tests

⁴⁹ ENVIRON Attachment page 3

⁵⁰ ENVIRON Attachment page 9

that are supposed to precede and follow the test of the equipment. If, for example, one of the intermittent noise sources at the DBOC plant were off during the test of the target equipment, but then on during the test of the ambient noise, then this would result in an underestimate of the targeted equipment's noise impact.

- 5) ENVIRON's data (59.4 maximum decibels) demonstrate that the oyster tumbler comes very close to violating 36 CFR 2.12's 60 decibel limit⁵¹ If this test was done without oysters or below regular operating speed, then a test of normal operations would demonstrate a violation.

- 6) ENVIRON's biased tests again lay the foundation for Dr. Goodman to mock NPS 's choice from the FHWA noise library⁵² To demonstrate the asserted validity of his mockery, Dr. Goodman's PowerPoint shows a photo of a "rivet buster" (middle) from FHWA list of equipment with the same 79 decibel count. The photo on the left is the ENIRON photo of the DBOC oyster tumbler. However, the FHWA authority chart makes clear that the "rivet-buster" is an "impact" device and thus is a not reasonable choice from the FHWA list. We don't know the NPS selection process, but we suggest that a slurry of cement rotating in a drum might be the most likely substitute for a machine that tumbles oysters. The FHWA figure for a cement mixer truck is 79. Alternately, NPS could have taken the 85 decibel figure for FHWA for "all other Equipment" and conservatively decided to reduce the loudness attributed to the oyster tumbler by a third (6 decibels) , resulting in the 79 decibels in the DEIS. In any case, however, Dr. Goodman attributing the NPS choice to a "rivet-buster" impact tool has no credible basis. All of this mockery serves to distract the public from the conclusion that NPS use of a representative noise level from the FHWA noise "library" for an "oyster tumbler" is a reasonable comparison.



- 7) SUMMARY: The analysis of the oyster tumbler test contradicts Dr. Goodman's claims of NPS bias. In contrast, we believe the above analysis provides evidence that both ENVIRON and Dr. Goodman are attempting to mislead NPS and the public that is unfamiliar with acoustic testing.

⁵¹ <http://www.gpo.gov/fdsys/pkg/CFR-2010-title36-vol1/pdf/CFR-2010-title36-vol1-sec2-12.pdf>

⁵² PPT Slide 4