



"Tim Ragen"  
<tragen@mmc.gov>  
07/09/2010 02:42 PM  
AST

To: "David Press" <dave\_press@nps.gov>  
cc:  
Subject: FW: Data points meeting

-----Original Message-----

From: Dave\_Press@nps.gov [mailto:Dave\_Press@nps.gov]  
Sent: Tuesday, May 11, 2010 2:10 AM  
To: Tim Ragen  
Cc: Ben Becker; Dave Graber; John Dell'Osso; Sarah Allen; Samantha Simmons  
Subject: Re: Data points meeting

Hi Tim,

June 9 is on our calendars and we received our packets with the background material in the mail today. Included is a letter to you from Dr. Goodman dated April 28, 2010 and is in regards to a disturbance event recorded on April 29 2007. Dr. Goodman's letter is a revised version of the letter he sent to the NRC on January 18, 2009.

If you have not done so already, I suggest that you and Samantha review the NPS response to Dr. Goodman's original letter to the NRC data May 1, 2009. The NPS response is posted with the list of Drakes Estero documents on the MMC website, but was not included in our packets. The PDF file name is ltr\_nps\_goodman\_50109.

Finally, as I indicated I would do, I have revised the disturbance event spreadsheet I developed (page 131 of my packet) to indicate which records were used in Becker et al 2009, Becker et al 2010, and in our presentation to the MMC panel. I believe this will serve as a good guide to our discussion on the data in June.

Best regards, Dave

---

David Press  
Ecologist / Data Manager  
San Francisco Area Network  
Inventory and Monitoring Program  
415-331-0168  
415-331-5530 (FAX)

To: "Kevin Lunny" <kevin@Ex 6>, "Corey Goodman" <corey.goodman@Ex 6>, "Sarah Allen" <Sarah\_Allen@nps.gov>, "Ben Becker" <Ben\_Becker@nps.gov>, "'David Press'" <dave\_press@nps.gov>, "John Dell'Osso" <John\_A\_Dell'Osso@nps.gov>  
cc: "Dave Graber" <David\_Graber@nps.gov>, "David Weiman" <agresources@erols.com>, "Samantha Simmons" <SSimmons@mmc.gov>  
bcc:  
Subject: Data points meeting  
"Tim Ragen" <tragen@mmc.gov>

05/10/2010 10:43 AM AST  
<font size=-1></font>

Thanks, everyone, for adding your availability to the Doodle meeting planner. Let's set June 9 for the meeting. The 9th is a Wednesday.

We just sent you a copy of the background material we had compiled for the meeting. We thought that might be an easy way to make sure we are all looking at the same material. If we missed something, please send it to me and Sam and copy others on this email.

We also will send you a revised agenda for the meeting as we have a bit more time to think about how to maximize the value of the meeting. The revisions will be relatively small but, we hope, useful. I know none of you wants any surprises, and I do not believe the revisions will strike you as surprising.

Please contact me or Sam if you have questions or suggestions for the meeting or, for that matter, for any other related matters.

Best, Tim

---

Tim Ragen  
Executive Director  
U.S. Marine Mammal Commission  
4340 East-West Highway, Room 700  
Bethesda, MD 20814 USA  
301.504.0087 (office)  
301.504.0101 (direct)  
240.676.4162 (cell)  
301.504.0099 (fax)  
tragen@mmc.gov  
<http://www.mmc.gov> (web)

[attachment "winmail.dat" deleted by Dave Press/GOGA/NPS]



Cicely Muldoon/PORE/NPS

06/30/2010 04:59 PM

To: Tim Ragen <tragen@mmc.gov>, David Weiman <agresources@erols.com>, Kevin Lunny <kevin@Ex 6 [REDACTED] corey.goodman@Ex 6 [REDACTED]>  
cc: David Press <dave\_press@nps.gov>, Ben Becker/PORE/NPS@NPS, "Sarah Allen" <Sarah\_Allen@nps.gov>  
bcc: George Turnbull/OAKLAND/NPS; Maureen Foster/WASO/NPS@NPS; Alma Ripps/WASO/NPS@NPS; John A Dell'Ossio/PORE/NPS; Gordon White/PORE/NPS; Ann Nelson/PORE/NPS; Brannon Ketcham/PORE/NPS@NPS; Natalie Gates/PORE/NPS  
Subject: requested information

Dave, Corey, Kevin, and Tim:

We have pulled together the requested images and are putting them in the mail first thing tomorrow to each of you. The images provided on the DVD include the following:

May 8, 2007. 603 total images. All images from one camera with subsite OB in the foreground.  
March 14, 2008. 1440 total images. All images from both cameras, OB and UEF. Images were retrieved from the OB camera on March 14, 2008 and the camera reset. The images for the OB camera on this day are therefore divided into two separate folders.  
March 23, 2008. 1440 total images. All images from both cameras, OB and UEF.

The 2007 camera was not installed until May, so there are no images from April 26 or April 29, 2007.

In response to other follow up questions from Dave and Corey --

#### December 10, 2008 survey

The volunteer who took the pictures referred to on this data sheet is out of town until July 20. We will pursue getting copies of the images requested after she returns. Stay tuned on this one.

#### June 3, 2009 survey

We have looked to see if there are any other datasheets from June 3, 2009. All of the datasheets have been provided. Because there was only one disturbance recorded that day, as indicated by the count datasheets, we would not expect there to be more than one disturbance datasheet.

#### March 23 images

The photos on Sunday, March 23, 2008 referenced in the briefing statement were taken from what have been referred to as camera #2. Camera #2 faces north towards subsite UEF with Schooner Bay in the background. The boat is visible in the upper right corner of the photos we sent you, between 5:23 PM and 5:29 PM, traveling from Home Bay to Schooner Bay. These are the photos that were sent to Corey and Tim on June 9 and to Kevin on June 16, 2010. This was presumed to be a DBOC boat because of the extensive boat use in the Estero by DBOC, the rarity of other motor boats in the Estero, the time of year (during the kayak closure, although I understand this is occasionally violated), and the difficulty of seeing a kayak with such limited freeboard from such a great distance.

#### Harbor seal volunteers

The number of harbor seal volunteers is reported in our recent annual reports. For 2009, 2008, and 2007 there were 49, 38, and 36 volunteers respectively. Please note that our 2009 annual monitoring report was finalized and posted to the website last week. Website: [http://science.nature.nps.gov/im/units/sfan/vital\\_signs/pinnipeds/HarborSeals.cfm](http://science.nature.nps.gov/im/units/sfan/vital_signs/pinnipeds/HarborSeals.cfm)

#### Drakes Estero camera placement to the best of our knowledge

May 5, 2007 to June 19, 2007. One camera facing the OB seal haul out site. The camera was placed to the southeast of subsite OB. All 2007 photos appear to be taken from this angle.

March 6, 2008 to June 19, 2008. Two cameras. One camera facing OB haul out site along the lateral channel. One camera facing UEF haul out site with part of Schooner Bay in the background.  
April 17, 2009 to August 4, 2009. One camera. Camera faces OB haul out site along the lateral channel.  
Feb 12, 2010 to late May. One camera facing UEF haul out site with part of Schooner Bay in the background. Exact end date is unknown and may extend into early June.

To our knowledge no cameras are or were positioned to photograph on shore DBOC operations. The cameras were focused on the OB and UEF seal haul out subsites.

#### Wildlife cameras parkwide

At present, there are two wildlife cameras in use by a USGS scientist, and one camera in use for the snowy plover monitoring program. None of these capture Drakes Estero.

May 1, 2009 Briefing Statement. Since this briefing statement has now become the subject of a FOIA request from the Point Reyes Light, the FOIA process will explore what records exist.

Cicely



Cicely Muldoon, Superintendent  
POINT REYES NATIONAL SEASHORE

1 Bear Valley Road  
Point Reyes Station, CA 94956  
phone (415) 464-5101  
cicely\_muldoon@nps.gov

*Commitment to mission is commitment to each other*





Cicely Muldoon/PORE/NPS  
06/23/2010 09:11 AM

To "Dave Press" <Dave\_Press@nps.gov>, "Ben Becker"  
<Ben\_Becker@nps.gov>, Ann Nelson/PORE/NPS, "Brannon  
Ketcham" <Brannon\_Ketcham@nps.gov>

cc

bcc

Subject Fw: info requested

-----  
Sent from my BlackBerry Wireless Handheld  
Cicely Muldoon  
Deputy Regional Director  
Pacific West Region  
Office 510-817-1327  
Cell 510-541-0195

----- Original Message -----  
From: "David M Weiman" [agresources@erols.com]  
Sent: 06/23/2010 10:31 AM AST  
To: Cicely Muldoon  
Subject: RE: info requested

Cicely.

Thank you for your reply and the additional information.

We did not know a camera was installed at the Estero in 2007.

We ask the following:

(1) Please provide all photographic records for the April 26, 2007 Disturbance Report. Include all of the photographic records beginning at least one hour prior to and after the observation time (3:45 to 5:00 pm). By our rough calculations, that should be approximately 200 time-stamped photographic files based on our understanding of the camera and how it was operated by NPS.

(2) Please provide all photographic records for the April 29, 2007 Survey and Disturbance Report. The Survey Record indicates that the observers were present from 9:30 am until 4:00 PM. Include all of the photographic records one hour prior to and after the observation time. By our rough calculations, that should be approximately 500 time-stamped photographic files based on our understanding of the camera and how it was operated by NPS.

(3) Please do the same for the May 8, 2007, Survey and Disturbance Report.

Given the circumstances, I would further request that these records be made available immediately -- today if possible.

Dave Press, following the June 7 MMC meeting, demonstrated that the

information is readily available. We would urge that it be placed on a disk and made available as quickly as possible.

Lastly, please send a copy of the disk to me, Kevin and Nancy Lunny, Dr. Corey Goodman, and the MMC.

Thank you for your cooperation.

Dave W.

-----Original Message-----

From: Cicely\_Muldoon@nps.gov [mailto:Cicely\_Muldoon@nps.gov]  
Sent: Tuesday, June 22, 2010 4:39 PM  
To: David M Weiman  
Cc: Kevin Lunny; Tim Ragen  
Subject: RE: info requested

Dave, this is my understanding of the timeline for the harbor seal monitoring cameras at Drakes Estero -

2007: one camera  
2008: two cameras  
2009: one camera  
2010: one camera - I believe this camera was non operational as of early June - the grad student who was using this camera injured her knee and hasn't been able to monitor the camera for the last few weeks

the map already sent represents the camera angles and approximate locations

can you be more specific about your last question related to any other cameras for any other purposes - are you interested in terrestrial wildlife in and around the Estero as well? also, when you refer to prior, how far back are you interested in - prior to Kevin's operation in the Estero?

Cicely

(Embedded image moved to file: pic00893.gif)

"David M Weiman"  
<agresources@erols.com>

06/21/2010 12:40  
PM

<Cicely\_Muldoon@nps.gov>

RE: info requested

To

cc

Subject

Cicely.

Thank you for responding to my email. In the future, any inquiries will be coordinated with your office, as requested. If my inquiry caused confusion, my apologies.

Immediately after the meeting, the Lunnys and I speculated that there were likely more cameras. Hence, the inquiry. This was prior to our learning of the second camera from the Citizen's interview with Dave Graber.

To further clarify and to make certain we fully understand the situation, is it correct to say there are only two cameras, those identified on the map you provided Kevin and Nancy? And, there were only two cameras?

Or, today or prior are or were there any other cameras?

And today or prior, were there any other cameras at any time and for any other purpose?

We just want to make certain that the situation is accurately understood.

Thank you.

Dave W.

-----Original Message-----

From: Cicely\_Muldoon@nps.gov [mailto:]  
Sent: Monday, June 21, 2010 12:10 PM  
To: agresources@erols.com  
Cc: Ben\_Becker@nps.gov; Sarah\_Allen@nps.gov; Dave\_Press@nps.gov  
Subject: info requested

Hi David - a request - would you please add me to any email that you send out to Point Reyes staff requesting information? It will be more efficient, and keep everyone in the loop, if communications are coordinated through my office. We talked about this at the MMC meeting, but possible you weren't part of that conversation? Thanks for your help with this.

To follow up on your point of clarification question - there is one remote camera at present focussed on the Estero (the UEF site, I believe). The grad student who is using the camera on a project through SF State injured her knee, so we are uncertain if it is functioning at present. I sent Kevin a map on 6/14 regarding the approximate location and field of view of the remote cameras that have been used for the OB and EUF sites over the past couple of years. I assume he shared this with you?

Cicely

(Embedded image moved to file: pic05538.gif)



Cicely Muldoon/PORE/NPS  
06/23/2010 09:11 AM

To George Turnbull/OAKLAND/NPS, "Alma Ripps"  
<Alma\_Ripps@nps.gov>

cc

bcc

Subject Fw: info requested

-----  
Sent from my BlackBerry Wireless Handheld  
Cicely Muldoon  
Deputy Regional Director  
Pacific West Region  
Office 510-817-1327  
Cell 510-541-0195

----- Original Message -----  
From: "David M Weiman" [agresources@erols.com]  
Sent: 06/23/2010 10:31 AM AST  
To: Cicely Muldoon  
Subject: RE: info requested

Cicely.

Thank you for your reply and the additional information.

We did not know a camera was installed at the Estero in 2007.

We ask the following:

(1) Please provide all photographic records for the April 26, 2007 Disturbance Report. Include all of the photographic records beginning at least one hour prior to and after the observation time (3:45 to 5:00 pm). By our rough calculations, that should be approximately 200 time-stamped photographic files based on our understanding of the camera and how it was operated by NPS.

(2) Please provide all photographic records for the April 29, 2007 Survey and Disturbance Report. The Survey Record indicates that the observers were present from 9:30 am until 4:00 PM. Include all of the photographic records one hour prior to and after the observation time. By our rough calculations, that should be approximately 500 time-stamped photographic files based on our understanding of the camera and how it was operated by NPS.

(3) Please do the same for the May 8, 2007, Survey and Disturbance Report.

Given the circumstances, I would further request that these records be made available immediately -- today if possible.

Dave Press, following the June 7 MMC meeting, demonstrated that the information is readily available. We would urge that it be placed on a disk

and made available as quickly as possible.

Lastly, please send a copy of the disk to me, Kevin and Nancy Lunny, Dr. Corey Goodman, and the MMC.

Thank you for your cooperation.

Dave W.

-----Original Message-----

From: Cicely\_Muldoon@nps.gov [mailto:Cicely\_Muldoon@nps.gov]  
Sent: Tuesday, June 22, 2010 4:39 PM  
To: David M Weiman  
Cc: Kevin Lunny; Tim Ragen  
Subject: RE: info requested

Dave, this is my understanding of the timeline for the harbor seal monitoring cameras at Drakes Estero -

2007: one camera  
2008: two cameras  
2009: one camera  
2010: one camera - I believe this camera was non operational as of early June - the grad student who was using this camera injured her knee and hasn't been able to monitor the camera for the last few weeks

the map already sent represents the camera angles and approximate locations

can you be more specific about your last question related to any other cameras for any other purposes - are you interested in terrestrial wildlife in and around the Estero as well? also, when you refer to prior, how far back are you interested in - prior to Kevin's operation in the Estero?

Cicely

(Embedded image moved to file: pic00893.gif)

"David M Weiman"  
<agresources@erols.com>

06/21/2010 12:40 PM

<Cicely\_Muldoon@nps.gov>

RE: info requested

To

cc

Subject

Cicely.

Thank you for responding to my email. In the future, any inquiries will be coordinated with your office, as requested. If my inquiry caused confusion, my apologies.

Immediately after the meeting, the Lunnys and I speculated that there were likely more cameras. Hence, the inquiry. This was prior to our learning of the second camera from the Citizen's interview with Dave Graber.

To further clarify and to make certain we fully understand the situation, is it correct to say there are only two cameras, those identified on the map you provided Kevin and Nancy? And, there were only two cameras?

Or, today or prior are or were there any other cameras?

And today or prior, were there any other cameras at any time and for any other purpose?

We just want to make certain that the situation is accurately understood.

Thank you.

Dave W.

-----Original Message-----

From: Cicely\_Muldoon@nps.gov [mailto:]

Sent: Monday, June 21, 2010 12:10 PM

To: agresources@erols.com

Cc: Ben\_Becker@nps.gov; Sarah\_Allen@nps.gov; Dave\_Press@nps.gov

Subject: info requested

Hi David - a request - would you please add me to any email that you send out to Point Reyes staff requesting information? It will be more efficient, and keep everyone in the loop, if communications are coordinated through my office. We talked about this at the MMC meeting, but possible you weren't part of that conversation? Thanks for your help with this.

To follow up on your point of clarification question - there is one remote camera at present focussed on the Estero (the UEF site, I believe). The grad student who is using the camera on a project through SF State injured her knee, so we are uncertain if it is functioning at present. I sent Kevin a map on 6/14 regarding the approximate location and field of view of the remote cameras that have been used for the OB and EUF sites over the past couple of years. I assume he shared this with you?

Cicely

(Embedded image moved to file: pic05538.gif)



"Tim Ragen"  
<tragen@mmc.gov>  
06/22/2010 03:41 PM

To ""Corey Goodman"" <corey.goodman@Ex 6  
<cicely\_muldoon@nps.gov>  
cc ""David Weiman"" <agresources@erols.com>, ""Kevin Lunny""  
<kevin@Ex 6  
bcc

Subject RE: the photos you sent

History: This message has been forwarded.

Hi All,

I am concerned that the exchanges we've had since our data meeting may be undermining much of the progress I thought we had made in the past two meetings. That being said, I continue to believe that there is a way forward. I am wondering if we wouldn't benefit from a pause in this back and forth while we consider the next step. I had hoped that the data meeting would bring closure to many of the remaining issues and that some of us could back away and let Cicely and Kevin develop their working relationship. That may have been naive on my part, and now I am wondering if we might need or benefit from a small meeting to tie up remaining details and complete this transition. From the MMC perspective, a pause that allows everyone a chance to catch their breath would be a good thing. So I am asking everyone to step back and take a minute to let the waters calm a bit. I will try to call each of you separately in the next three days to talk about how to move forward.

Thanks for considering my request. Best, Tim

**From:** Corey Goodman [mailto:corey.goodman@Ex 6  
**Sent:** Tuesday, June 22, 2010 4:59 PM  
**To:** cicely\_muldoon@nps.gov  
**Cc:** David Weiman; David Press; Kevin Lunny; Tim Ragen  
**Subject:** Re: the photos you sent

Hi Cicely,

I am puzzled by your June 21 reply concerning the digital photos.

We have all committed to improving communications, but I fear the past several weeks foreshadow more of the same. I fear I am still experiencing the same kinds of needless and costly administrative roadblocks to access basic data suffered under the previous administration at Point Reyes.

On Sunday June 6, I read the May 1, 2009 NPS Briefing Statement for the first time and discovered that NPS had installed a hidden camera (now understood to be multiple hidden cameras). On Monday June 7, at the MMC meeting on Disputed NPS Harbor Seal Data, I asked for the photo series from two dates: March 14, 2008 and March 23, 2008, both with implications concerning DBOC

oyster boats, NPS Harbor Seal Data, NPS observer integrity and the MMC deliberations.

About a half-hour after the meeting concluded, while Kevin and I were standing in the parking lot after the meeting, Dave Press came over, handed us a B&W print from one of the photos (March 14, 2008) and acknowledged that they were easy to find (since they are date and time stamped). Further, he indicated that there were about 10 photos (one per minute). Dave said he'd send the photos later that day. He didn't. Two days later on June 9, I requested these photos from him and you. On Friday June 11, the correct photos from March 14 arrived, and I was also sent some photos from March 23.

The March 23, 2008 photos were puzzling. They contained no boat, and they were from camera #2 and not camera #1. I wrote back to Dave and you on June 15 asking for the correct photos from March 23 (i.e., the ones allegedly containing the DBOC boat) and I got no reply. Then I wrote again one week later. You replied yesterday that your focus now is on a FOIA request, and because of it, you cannot reply at this time.

The history in this matter is well-documented. FOIA requests to PRNS and the Western Regional Office have not been answered in a timely basis and more often than not, been used to withhold and delay information, not make it available. In 2007, I was denied the requested and already public harbor seal data. Senator Feinstein intervened. NPS tried to explain that it might be expensive and after the Senator directed that the bill be sent to her, the harbor seal data was finally released. As you heard at the MMC meeting, NPS refused to answer the simplest question about the NPS claim, made in 2007 at a Board of Supervisor's meeting that harbor seals had declined 80%. I asked: "at which site?" That question took two years to get an answer to, and the answer given to the NAS panel was quite different from the answer given to the MMC panel. By the way, I was ultimately told back in Summer, 2007, after several months and rounds of appeal, that if I wanted the data, I would have to sue the federal government.

In 2008, I asked Ben Becker, David Press and Sarah Allen to provide me copies of documents submitted to the NAS. Your staff stated to the MMC that the May 1 Briefing Paper was submitted to the National Academy of Sciences. That is not correct.

David Press demonstrated that these photos are readily accessible and available. I

request that NPS honor the commitment to provide this data so that it can be reviewed and analyzed. We are under severe time constraints because of MMC. They want to complete their report and have told us that we must submit our analysis promptly.

President Obama made "transparency" a cornerstone of his presidency. The President issued directives to improve transparency on his very first day in office. FOIA should not impede access to information.

Please help us meet our commitments to the MMC and arrange to have this data made available immediately.

By the way, I am also still waiting to hear from you concerning the questions you promised to answer concerning the May 1, 2009 Briefing Statement. No one -- from the scientists to Dave Graber to you -- have yet answered three simple questions concerning this 33-page document:

Who requested it?

Who wrote it?

Who received it?

Thanks very much.

Corey

On Jun 21, 2010, at 10:42 AM, [cicely\\_muldoon@nps.gov](mailto:cicely_muldoon@nps.gov) wrote:

Hi Corey,

My responsibility on the response time - had intended to send you one more comprehensive response last week to a series of questions you have sent to a variety of NPS staff so that the lines of communications could be a little less cluttered. Regrettably my intentions exceed the time I've had available, and as I presume you are aware we received a FOIA request last week on this same subject from the Point Reyes Light, for which we are in the process of assembling a much more comprehensive response. I'm sure you will understand that our priority has to be the FOIA response, but I do hope to get you a clarification as you request on the photos already sent.

I'm out of the office today, but will be in contact with Dave, and hope to get back to you as soon as I can.

Thanks

Cicely

(Embedded image moved to file: pic07267.gif)

Corey Goodman  
<corey.goodman@Ex  
Ex 6  
To  
Cicely Muldoon  
06/21/2010 09:40 AM <Cicely\_Muldoon@nps.gov>, David  
Press <dave\_press@nps.gov>  
cc  
David Weiman  
<agresources@erols.com>, Kevin  
Lunny <kevin@Ex 6 Tim  
Ragen <tragen@mmc.gov>  
Subject  
Re: the photos you sent

David and Cicely,  
Nearly a week ago, I wrote and asked for further photographs, or further clarification, of photos from Sunday March 23. I never heard back from either of you. Would you please send me all of the photos from that day from both cameras, or at the very least the photos, and 30 minutes to either side, of the DBOC boat on the estero. This is a time sensitive request.  
Could you please confirm how you plan to respond.  
Thanks very much.  
Best wishes,  
Corey

On Jun 15, 2010, at 5:21 AM, Corey Goodman wrote:

David and Cicely,

Thanks very much for sending the CD with the photos. However, it is possible that may not have sent the right photos. Please correct me if I am mistaken.

When I made my request for photos last week, I was only aware of one camera pointing at Drakes Estero (you had not told us at the meeting on Monday June 7 that there was a second camera). I asked for photos from two days: March 14, 2008 (the date of a disturbance event) and March 23, 2008 (a Sunday cited in the May 1, 2009 "Briefing Statement" for which "NPS has time stamped images of a DBOC boat present on Drakes Estero").

Since my request, you have identified that you have two cameras on Drakes Estero, one (#1) further south pointing west at the lateral channel and oyster bags on UEN and OB, and the other (#2) further north and pointing northwest at UEF and the mouth of Schooner Bay.

For March 14, 2008, who correctly sent me photos of the lateral channel from camera #1 showing the image of a boat.

For March 23, 2008, who sent me a small number of photos pointing northwest from camera #2. These photos do not show a boat. Do you have other photos showing the DBOC boat?

In the "Briefing Statement", were you citing a DBOC boat in camera #1 or #2?

If you were citing camera #1, please send me those photos. If you were citing camera #2, please explain.

I presume it is simply a matter of sending me the correct photos from the appropriate camera.

Thanks for taking care of this.

Best wishes,

Corey

Corey S. Goodman, Ph.D.  
corey. Ex 6

Ex 6

<pic07267.gif>



Corey Goodman  
<corey.goodman@Ex 6>  
06/22/2010 01:59 PM

To: cicely\_muldoon@nps.gov  
cc: David Weiman <agresources@erols.com>, David Press  
<dave\_press@nps.gov>, Kevin Lunny  
<kevin@Ex 6>, Tim Ragen <tragen@mmc.gov>  
bcc:

Subject: Re: the photos you sent

History: This message has been forwarded.

Hi Cicely,

I am puzzled by your June 21 reply concerning the digital photos.

We have all committed to improving communications, but I fear the past several weeks foreshadow more of the same. I fear I am still experiencing the same kinds of needless and costly administrative roadblocks to access basic data suffered under the previous administration at Point Reyes.

On Sunday June 6, I read the May 1, 2009 NPS Briefing Statement for the first time and discovered that NPS had installed a hidden camera (now understood to be multiple hidden cameras). On Monday June 7, at the MMC meeting on Disputed NPS Harbor Seal Data, I asked for the photo series from two dates: March 14, 2008 and March 23, 2008, both with implications concerning DBOC oyster boats, NPS Harbor Seal Data, NPS observer integrity and the MMC deliberations.

About a half-hour after the meeting concluded, while Kevin and I were standing in the parking lot after the meeting, Dave Press came over, handed us a B&W print from one of the photos (March 14, 2008) and acknowledged that they were easy to find (since they are date and time stamped). Further, he indicated that there were about 10 photos (one per minute). Dave said he'd send the photos later that day. He didn't. Two days later on June 9, I requested these photos from him and you. On Friday June 11, the correct photos from March 14 arrived, and I was also sent some photos from March 23.

The March 23, 2008 photos were puzzling. They contained no boat, and they were from camera #2 and not camera #1. I wrote back to Dave and you on June 15 asking for the correct photos from March 23 (i.e., the ones allegedly containing the DBOC boat) and I got no reply. Then I wrote again one week later. You replied yesterday that your focus now is on a FOIA request, and because of it, you cannot

reply at this time.

The history in this matter is well-documented. FOIA requests to PRNS and the Western Regional Office have not been answered in a timely basis and more often than not, been used to withhold and delay information, not make it available. In 2007, I was denied the requested and already public harbor seal data. Senator Feinstein intervened. NPS tried to explain that it might be expensive and after the Senator directed that the bill be sent to her, the harbor seal data was finally released. As you heard at the MMC meeting, NPS refused to answer the simplest question about the NPS claim, made in 2007 at a Board of Supervisor's meeting that harbor seals had declined 80%. I asked: "at which site?" That question took two years to get an answer to, and the answer given to the NAS panel was quite different from the answer given to the MMC panel. By the way, I was ultimately told back in Summer, 2007, after several months and rounds of appeal, that if I wanted the data, I would have to sue the federal government.

In 2008, I asked Ben Becker, David Press and Sarah Allen to provide me copies of documents submitted to the NAS. Your staff stated to the MMC that the May 1 Briefing Paper was submitted to the National Academy of Sciences. That is not correct.

David Press demonstrated that these photos are readily accessible and available. I request that NPS honor the commitment to provide this data so that it can be reviewed and analyzed. We are under severe time constraints because of MMC. They want to complete their report and have told us that we must submit our analysis promptly.

President Obama made "transparency" a cornerstone of his presidency. The President issued directives to improve transparency on his very first day in office. FOIA should not impede access to information.

Please help us meet our commitments to the MMC and arrange to have this data made available immediately.

By the way, I am also still waiting to hear from you concerning the questions you promised to answer concerning the May 1, 2009 Briefing Statement. No one -- from the scientists to Dave Graber to you -- have yet answered three simple questions concerning this 33-page document:

Who requested it?

Who wrote it?  
Who received it?

Thanks very much.

Corey

On Jun 21, 2010, at 10:42 AM, [cicely\\_muldoon@nps.gov](mailto:cicely_muldoon@nps.gov) wrote:

Hi Corey,

My responsibility on the response time - had intended to send you one more comprehensive response last week to a series of questions you have sent to a variety of NPS staff so that the lines of communications could be a little less cluttered. Regrettably my intentions exceed the time I've had available, and as I presume you are aware we received a FOIA request last week on this same subject from the Point Reyes Light, for which we are in the process of assembling a much more comprehensive response. I'm sure you will understand that our priority has to be the FOIA response, but I do hope to get you a clarification as you request on the photos already sent. I'm out of the office today, but will be in contact with Dave, and hope to get back to you as soon as I can.

Thanks

Cicely

(Embedded image moved to file: pic07267.gif)

Corey Goodman

<[corey.goodman@Ex 6](mailto:corey.goodman@Ex 6)>

Ex 6

To

Cicely Muldoon

06/21/2010 09:40

AM

<[Cicely\\_Muldoon@nps.gov](mailto:Cicely_Muldoon@nps.gov)>, David

Press <[dave\\_press@nps.gov](mailto:dave_press@nps.gov)>

cc

David Weiman

<[agresources@erols.com](mailto:agresources@erols.com)>, Kevin

Lunny <[kevin@Ex 6](mailto:kevin@Ex 6)> Tim

Ragen <[tragen@mmc.gov](mailto:tragen@mmc.gov)>

Subject

Re: the photos you sent

David and Cicely,

Nearly a week ago, I wrote and asked for further photographs, or further clarification, of photos from Sunday March 23. I never heard back from either of you. Would you please send me all of the photos from that day from both cameras, or at the very least the photos, and 30 minutes to either side, of the DBOC boat on the estero. This is a time sensitive request.

Could you please confirm how you plan to respond.

Thanks very much.

Best wishes,

Corey

On Jun 15, 2010, at 5:21 AM, Corey Goodman wrote:

David and Cicely,

Thanks very much for sending the CD with the photos. However, it is possible that may not have sent the right photos. Please correct me if I am mistaken.

When I made my request for photos last week, I was only aware of one camera pointing at Drakes Estero (you had not told us at the meeting on Monday June 7 that there was a second camera). I asked for photos from two days: March 14, 2008 (the date of a disturbance event) and March 23, 2008 (a Sunday cited in the May 1, 2009 "Briefing Statement" for which "NPS has time stamped images of a DBOC boat present on Drakes Estero").

Since my request, you have identified that you have two cameras on Drakes Estero, one (#1) further south pointing west at the lateral



Cicely Muldoon/PORE/NPS  
06/22/2010 10:33 AM

To Alma Ripps/WASO/NPS@NPS  
cc  
bcc  
Subject Re: Fw: One more question 

Believe march 07, like to confirm, need database guy who is not in yet

---

Sent from my BlackBerry Wireless Handheld  
Cicely Muldoon  
Deputy Regional Director  
Pacific West Region  
Office 510-817-1327  
Cell 510-541-0195

Alma Ripps

----- Original Message -----

**From:** Alma Ripps  
**Sent:** 06/22/2010 01:02 PM EDT  
**To:** Cicely Muldoon  
**Cc:** Sarah Allen  
**Subject:** Re: Fw: One more question

Really need to know this date ASAP.

Alma

---

Alma Ripps  
Management Assistant  
Office of the Director  
National Park Service  
1849 C Street, NW, Room 3115  
Washington, DC 20240

Private Line: 202 208-3326  
General Line: 202 208-3818  
Fax: 202 208-7889  
Email: Alma\_Ripps@nps.gov

Cicely Muldoon/PORE/NPS



Cicely Muldoon/PORE/NPS  
06/21/2010 01:14 PM

To Sarah Allen  
cc Alma Ripps/WASO/NPS@NPS  
Subject Fw: One more question

Sarah, can you provide this information?  
thanks

c



Cicely Muldoon, Superintendent  
POINT REYES NATIONAL SEASHORE

1 Bear Valley Road  
Point Reyes Station, CA 94956  
phone (415) 464-5101  
cicely\_muldoon@nps.gov

*Commitment to mission is commitment to each other*



----- Forwarded by Cicely Muldoon/PORE/NPS on 06/21/2010 10:13 AM -----



Alma Ripps/WASO/NPS

06/21/2010 10:10 AM

To Cicely Muldoon/PORE/NPS@NPS

cc

Subject One more question

Briefing paper said that cameras were first placed out in 2007. Could you be more definitive about the month?

Got your other message, thanks for the info.

Alma

---

Alma Ripps  
Management Assistant  
Office of the Director  
National Park Service  
1849 C Street, NW, Room 3115  
Washington, DC 20240

Private Line: 202 208-3326  
General Line: 202 208-3818  
Fax: 202 208-7889  
Email: Alma\_Ripps@nps.gov



Cicely Muldoon/PORE/NPS  
06/21/2010 10:42 AM

To Corey Goodman <corey.goodman@Ex 6 [REDACTED]>  
cc David Weiman <agresources@erols.com>, David Press <dave\_press@nps.gov>, Kevin Lunny <kevin@Ex 6 [REDACTED]>, Tim Ragen <tragen@mmc.gov>  
bcc George Turnbull/OAKLAND/NPS; Ann Nelson/PORE/NPS; Sue\_Husari@nps.gov; Ben Becker/PORE/NPS@NPS; Gordon White/PORE/NPS; markb@ptreyes.org; Alma Ripps/WASO/NPS@NPS; John A Dell'Oso/PORE/NPS  
Subject Re: the photos you sent

Hi Corey,

My responsibility on the response time - had intended to send you one more comprehensive response last week to a series of questions you have sent to a variety of NPS staff so that the lines of communications could be a little less cluttered. Regrettably my intentions exceed the time I've had available, and as I presume you are aware we received a FOIA request last week on this same subject from the Point Reyes Light, for which we are in the process of assembling a much more comprehensive response. I'm sure you will understand that our priority has to be the FOIA response, but I do hope to get you a clarification as you request on the photos already sent. I'm out of the office today, but will be in contact with Dave, and hope to get back to you as soon as I can.

Thanks

Cicely



**Cicely Muldoon, Superintendent**  
**POINT REYES NATIONAL SEASHORE**

1 Bear Valley Road  
Point Reyes Station, CA 94956  
phone (415) 464-5101  
cicely\_muldoon@nps.gov

*Commitment to mission is commitment to each other*



Corey Goodman <corey.goodman@Ex 6 [REDACTED]>



Corey Goodman  
<corey.goodman@Ex 6 [REDACTED]>  
06/21/2010 09:40 AM

To Cicely Muldoon <Cicely\_Muldoon@nps.gov>, David Press <dave\_press@nps.gov>  
cc David Weiman <agresources@erols.com>, Kevin Lunny <kevin@Ex 6 [REDACTED]>, Tim Ragen <tragen@mmc.gov>  
Subject Re: the photos you sent

David and Cicely,  
Nearly a week ago, I wrote and asked for further photographs, or further clarification, of photos from Sunday March 23. I never heard back from either of you. Would you please send me all of the photos from that day from both cameras, or at the very least the photos, and 30 minutes to either side, of the DBOC boat on the estero. This is a time sensitive request.  
Could you please confirm how you plan to respond.  
Thanks very much.

Best wishes,  
Corey

On Jun 15, 2010, at 5:21 AM, Corey Goodman wrote:

> David and Cicely,  
>  
> Thanks very much for sending the CD with the photos. However, it is  
> possible that may not have sent the right photos. Please correct me  
> if I am mistaken.  
>  
> When I made my request for photos last week, I was only aware of one  
> camera pointing ~~at~~ Drakes Estero (you had not told us at the meeting  
> on Monday June 7 that there was a second camera). I asked for  
> photos from two days: March 14, 2008 (the date of a disturbance  
> event) and March 23, 2008 (a Sunday cited in the May 1, 2009  
> "Briefing Statement" for which "NPS has time stamped images of a  
> DBOC boat present on Drakes Estero").  
>  
> Since my request, you have identified that you have two cameras on  
> ~~Drakes~~ Estero, one (#1) further south pointing west at the lateral  
> channel and oyster bags on UEN and OB, and the other (#2) further  
> north and pointing northwest at UEF and the mouth of Schooner Bay.  
>  
> For March 14, 2008, who correctly sent me photos of the lateral  
> channel from camera #1 ~~showing~~ the image of a boat.  
>  
> For March 23, 2008, who sent me a small number of photos pointing  
> northwest from camera #2. These photos do not show a boat. Do you  
> have other photos showing the DBOC boat?  
>  
> In the "Briefing Statement", were you citing a DBOC boat in camera  
> #1 or #2?  
>  
> If you were citing camera #1, please send me those photos. If you  
> were citing camera #2, please explain.  
>  
> I presume it is simply a matter of sending me the correct photos  
> from the appropriate camera.  
>  
> Thanks for taking care of this.  
>  
> Best wishes,  
>  
> Corey  
>  
> Corey S. Goodman, Ph.D.  
> corey.goodman@Ex 6  
>  
> Ex 6  
>  
>  
>  
>



Corey Goodman  
<corey.goodman@Ex 6>  
06/21/2010 09:40 AM

To Cicely Muldoon <Cicely\_Muldoon@nps.gov>, David Press  
<dave\_press@nps.gov>  
cc David Weiman <agresources@erols.com>, Kevin Lunny  
<kevin@Ex 6> Tim Ragen <tragen@mmc.gov>  
bcc

Subject Re: the photos you sent

History: This message has been replied to and forwarded.

David and Cicely,  
Nearly a week ago, I wrote and asked for further photographs, or further clarification, of photos from Sunday March 23. I never heard back from either of you. Would you please send me all of the photos from that day from both cameras, or at the very least the photos, and 30 minutes to either side, of the DBOC boat on the estero. This is a time sensitive request.  
Could you please confirm how you plan to respond.  
Thanks very much.  
Best wishes,  
Corey

On Jun 15, 2010, at 5:21 AM, Corey Goodman wrote:

> David and Cicely,  
>  
> Thanks very much for sending the CD with the photos. However, it is  
> possible that may not have sent the right photos. Please correct me  
> if I am mistaken.  
>  
> When I made my request for photos last week, I was only aware of one  
> camera pointing at Drakes Estero (you had not told us at the meeting  
> on Monday June 7 that there was a second camera). I asked for  
> photos from two days: March 14, 2008 (the date of a disturbance  
> event) and March 23, 2008 (a Sunday cited in the May 1, 2009  
> "Briefing Statement" for which "NPS has time stamped images of a  
> DBOC boat present on Drakes Estero").  
>  
> Since my request, you have identified that you have two cameras on  
> Drakes Estero, one (#1) further south pointing west at the lateral  
> channel and oyster bags on UEN and OB, and the other (#2) further  
> north and pointing northwest at UEF and the mouth of Schooner Bay.  
>  
> For March 14, 2008, who correctly sent me photos of the lateral  
> channel from camera #1 showing the image of a boat.  
>  
> For March 23, 2008, who sent me a small number of photos pointing  
> northwest from camera #2. These photos do not show a boat. Do you  
> have other photos showing the DBOC boat?  
>  
> In the "Briefing Statement", were you citing a DBOC boat in camera  
> #1 or #2?  
>  
> If you were citing camera #1, please send me those photos. If you  
> were citing camera #2, please explain.  
>

> I presume it is simply a matter of sending me the correct photos  
> from the appropriate camera.  
>  
> Thanks for taking care of this.  
>  
> Best wishes,  
>  
> Corey  
>  
> Corey S. Goodman, Ph.D.  
> corey.goodman@Ex 6  
> Ex 6  
>  
>  
>  
>



Cicely Muldoon/PORE/NPS  
06/16/2010 05:21 PM

To Dan Wenk/WASO/NPS  
cc  
bcc Ann Nelson/PORE/NPS; George Turnbull/OAKLAND/NPS;  
Rory\_Westberg@nps.gov  
Subject requested info

Dan, hope this helps:

- wildlife observation cameras are not new to Point Reyes: we've used them over the years for inventory and monitoring, research, and management. This has included cameras on harbor seals, elephant seals, elk, and wildlife in general. PORE also used remote cameras extensively after the Vision Fire, and most recently on the Giacomini Wetland restoration project. This is a common tool used in wildlife management/study everywhere.
- the Drakes Estero cameras were put out to understand why there was a drop in harbor seal numbers at the OB site, and to document if there were disturbances that might help explain the drop in numbers
- the cameras - in Drakes Estero and elsewhere - are camouflaged to protect against vandalism, theft, and accidental disturbance by cattle, wildlife, birds, etc...
- timeline to the best of my knowledge:
- 2010: there is one camera at Drakes Estero right now, being used by a student from SF State on her masters thesis focussed on harbor seals and disturbance.
- 2009: one camera focussed on OB haul out site
- 2008: there were two cameras at Drakes Estero, aimed at seal haulout sites in the upper estero, referred to as OB and UEF (see attached map) - these are two major harbor seal haulout areas that have shown the largest declines in seal numbers. These declines are documented in two peer reviewed scientific papers; one published in 2009, one to be published in 2010.
- 2007: there was one camera focussed on the OB site
- the allegations that these cameras were not focussed on haul out sites is false - the images have seal haul out sites in the foreground; they can show, when present, boats in the background - any boat would show up, kayak, oyster boat, or whatever is out there. Attached is an image that shows a kayak. This camera -when functioning- would pick up any disturbance.
- the cameras were active during the breeding season, generally March-June
- images from the cameras have not yet been analyzed in any depth - a handful of images have been used publicly: in the Marine Mammal Commission meeting that happened here in February, and in a briefing statement prepared here at PORE this time last year, in response to Corey Goodman's letter to the NRC
- an additional note: the briefing statement, which references the cameras, has been posted since at least February on the publicly accessible Marine Mammal Commission web site. Ex 5

Ex 5

Attached are: map showing the camera angles in Drakes Estero; sample photos from the cameras; the briefing statement prepared last May

- oyster\_activity\_seal\_cameras.pdf
- IMG\_0003.JPG
- IMG\_0037.JPG
- IMG\_2193.JPG
- T0004101.JPG
- NPS Response to Goodman NRC May 2009.pdf

thanks

c.

**Briefing Statement - National Park Service Response to  
Goodman's January 18, 2009 Letter to NRC  
May 1, 2009**

This briefing statement addresses allegations and criticisms put forth in a January 18, 2009 letter from Dr. Goodman to the National Research Council (NRC). There are additional documents in support of this rebuttal. Dr. Goodman has made several accusations that fall into three categories: falsified data, manipulated and withheld information, and not following NPS protocols. His accusations are based on a number of assumptions, little data and faulty analyses. Here, we refute the accusations with sound data and scientific analyses.

**Allegations of falsified data**

The allegation of falsified data on April 29, 2007 is based on several incorrect assumptions. Dr. Goodman assumes that the seals do not use the site when sandbars are submerged and that seals are not disturbed by sources > 300 ft away. This is no supporting evidence for these allegations.

- Seals regularly hover over and rest on sandbars in Drakes Estero and elsewhere before the sandbars are exposed by falling tides. Also, disturbances of seals documented by NPS were recorded during the *breeding* season when females and pups are commonly on the sandbars. Dr. Goodman used incomplete tidal data for his analyses and analyzed tidal effects during January when seals are less common at the site.
- Dr. Goodman implies that seals could not be disturbed at distances greater than 300 ft. The National Marine Fisheries Service recommends generally a distance of 300 ft for not disturbing marine mammals; however, the published literature is replete with information on harbor seals disturbed at greater distances.

**Allegations of manipulated and withheld data**

The record of Dr. Becker's communications to the NRC and the editor of the Journal of Marine Mammal Science (MMS) demonstrates clearly that NPS did not manipulate data or mislead either the NRC (in his presentation to the NAS panel in September 2008 and in the final published paper in MMS which he shared with them) or the editor of MMS (in correspondence back and forth in final preparation of the paper). In the process of revising the paper, Dr. Becker found additional disturbances in the database that were missed during the first version of the paper but those omissions were rectified and fully explained to both the NRC and the MMS editor.

**Allegations of NPS failing to follow protocols and QA/QC**

Dr. Goodman challenged the validity of the survey on April 29, 2007 because he states that it did not meet the protocol criteria of the pinniped monitoring program based on tide height and the experience of the volunteers. The MMS paper clearly states that *count* data were filtered for date, observer experience, tide and weather. However, *disturbance* data are not subject to these criteria. Disturbances can be recorded at any tide, weather, or observer experience level. First year observers, all of who must attend trainings, have the ability to observe, for example, a motorboat flushing harbor seals off a sandbar. Furthermore, it is irrelevant whether a disturbance occurs in poor weather conditions or at a high or low tide. Nevertheless, the volunteers in question had at least one previous year of experience which Dr. Goodman did not recognize from the pinniped database, and their count data met the protocol for tide level.

We note that in previous letters from Dr. Goodman that he criticized the NPS statistical modeling techniques. His critiques were closely examined by editors and peer reviewers at MMS and were flatly rejected. He now primarily focuses on data handling and alleges NPS falsified data that were independently collected by several different volunteers and NPS staff. We find Dr. Goodman's statements misguided as evidenced by the conclusions of both the editors of MMS and the DOI Inspector General that there was no evidence of scientific misconduct. Separately, the NRC refused to consider his allegations of scientific misconduct.

**National Park Service Response to  
Goodman's January 18, 2009 Letter to NRC  
May 1, 2009**

This document addresses the allegations and criticisms put forth in a January 18, 2009 letter from Dr. Goodman to the National Research Council (NRC). We are not addressing all of the allegations in the letter because many of them were presented in earlier letters of Dr. Goodman that we previously rebutted. Because Dr. Goodman's letter addresses many themes and frequently revisits them in a non-linear fashion, we have reorganized what we believe are the salient points and address them in turn below. Several of the short responses below are supported by additional referenced documents that are attached in appendices.

**1. Allegation that NPS falsified data on harbor seal disturbance events.**

Dr. Goodman states on page 2 and on numerous other pages in his letter to the NRC that

*"Simply said, NPS presented you with false science. It is physically impossible for the disturbance events to have taken place as described..."*

The allegation of falsified data on April 29, 2007 is based on several incorrect assumptions. Dr. Goodman assumes that the seals do not use the site when the sandbars are submerged, that seals are not disturbed by sources > 300 ft away, that DBOC generally does not operate on Sundays, and that several volunteers and NPS staff separately fabricated disturbance data on several days of field observations. There is no supporting evidence for these allegations and we refute them with actual data.

- Assumption that seals do not use submerged sandbars (Goodman Letter, pages 7-12) Seals (especially mothers with pups) regularly hover over and rest on sandbars in Drakes Estero before they are exposed by falling tides, and this is a common behavior of harbor seals elsewhere. NPS has time stamped images of seals on the sandbars at similar falling tides during the 2008 *breeding* season in Drakes Estero. Furthermore, the disturbances documented by NPS were recorded during the breeding season when females and pups are commonly on these sandbars. Seals use these sandbars less frequently during January, the time of the "experiment" that Goodman cited in his letter. See **Appendix A** regarding tidal comparisons.
- Assumption that seals are not disturbed beyond the 300 foot Protective Zone (Goodman Letter, page 6) Dr. Goodman states that DBOC agreed to a 300 foot protective zone, and therefore, implies that seals could not be disturbed at distances greater than 300 ft. The National Marine Fisheries Service recommends a distance of 300 ft (100m) for not disturbing marine mammals; however, there is ample information in the published literature that documents harbor seals being disturbed at greater distances. Johnson and Gutierrez (2007) document power boats disturbing harbor seals in Washington at an average distance of 625 ft

(190.5 m) and as far as 1217 ft (371 m). Suryan and Harvey (1999) in another study in Washington document that 25% of disturbances to harbor seals occurred at a distance of 656-984 ft (200-300 m). Aircraft at high altitude also disturb harbor seals depending upon the amount of noise generated by the aircraft. It is not unreasonable that harbor seals in Drakes Estero were disturbed by boat noise generated at distances greater than 300 ft.

- Assumption that DBOC does not operate on Sundays (Goodman Letter, page 5) The April 29, 2007 disturbances occurred on a Sunday, however, Dr. Goodman states that DBOC does not normally operate on Sundays. We do not know at what frequency that DBOC boats operate on weekends; however, the DOI OIG investigation reports from an interview with the Chief Ranger of Point Reyes National Seashore that “Smith said that it was not uncommon for DBOC employees to take boats out into the estero after hours to fish.” (see page 26 of the DOI-OIG report July 2008). The NPS harbor seal monitoring database also reports DBOC activity in Drakes Estero on Sunday, May 11, 2007. In addition, NPS has time stamped images of a DBOC boat present on Drakes Estero on March 23, 2008, also a Sunday.
- Assumption of improbability of disturbances (Goodman Letter, pages 6-7) Dr. Goodman discounts the two April 29 disturbance events partly because they occurred so close together (50 minutes) that the boat would not have had enough time to return to the dock, pick up more bags, and then travel back to sandbar UEN. In fact, the volunteers never stated in their field notes that the boat returned to the dock and then came back between the disturbance events. There is no basis for Dr. Goodman to have assumed this, and subsequently discounting the events as logistically impossible is unclear. Possibly, the boat staged its operations from a barge moored within Drakes Estero, which is a common practice.
- Assumption that there are no other DBOC disturbance records (Goodman Letter, page 5) Dr. Goodman incorrectly states that as of April 29, 2007 there were no data documenting disturbances to harbor seals by DBOC. In fact, the database contains unambiguous records from April 26, 2007 documenting disturbances at multiple sites. An additional disturbance occurred the previous year on May 6, 2006.
- Assumption that the count occurred on April 29 at 3:15 PM (Goodman Letter, page 7) Dr. Goodman used a different time at which the volunteers conducted their full count of Drakes Estero from what is in the pinniped database. The database and datasheet clearly document that the data were collected at 2:15 PM. However, apparently based on a note on the photocopied datasheet Dr. Goodman assumes that the data were collected at 3:15 PM in his letter.

*“Based upon the tide chart with appropriate lag correction, it would have been difficult if not impossible for them to count seals on UEN and OB until 15:15. If*

*the tide was too high and they couldn't count the seals on UEN or OB until 15:15, then how could they record a disturbance at 12:50?"*

The field data sheet from the survey on April 29, 2007 reads, "poor tide – counted when could – had to leave at 3:15." Dr. Goodman mistakenly concluded that the volunteers could not count the harbor seals until 3:15 PM, which incorrectly supported his claims that earlier disturbances could not have occurred.

## **2. Allegation that 2003 disturbance data were covertly manipulated among versions of the MMS paper:**

Dr. Goodman states on page 16 in his letter to the NRC that:

*"The 2003 disturbance data changed from Becker I to Becker II with no comment about why these data were missed in Becker I or how they were found for Becker II."*

During preparation for the first Marine Mammal Science (MMS) journal submission, Becker inadvertently overlooked the 2003 disturbances. The datum (one disturbance) was in the dataset that D. Press, the NPS data manager, provided to Becker preparing the first MMS manuscript. While preparing for the NRC presentation on September 4, 2008, Becker realized his error of omission, and *therefore, included an asterisk by the 2003 data with "possible disturbance" on the NRC presentation (see Appendix B)*. Additionally, in Becker's Sept. 22, 2008 letter to the MMS editor, he clearly included this one disturbance in an analysis on page 8 (that particular analysis was not used in the final paper).

Then, after the NRC meeting, when revising the MMS paper in late September, 2008, and after the first letter was sent to MMS, D. Press found an additional disturbance event in the comments section of the data sheet for that the 2003 survey day. In sum, there were two actual disturbances in 2003. Becker incorporated both into the final paper which he shared with NRC as soon as it was accepted by the editor of MMS. The MMS editor himself read through and made minor editorial corrections on the near final copy of the paper with the corrected two disturbances in it. Thus, communications to both the NRC (in the presentation and in the final paper) and the MMS editor (in correspondence back and forth) clearly demonstrate that the NPS was openly exchanging information.

## **3. Allegation that NPS withheld information from the MMS editor.**

Dr. Goodman states on page 19 that

*"In his (Becker's) statement in the results section of his paper on lines 319-329, he told us one important fact that he did not tell the Editor in his cover letter when he wrote:*

*"For example, there was still a significant positive correlation ... of disturbance rate with oyster harvest even when removing the 2006 disturbance, four of the*

*2007 disturbances (including two disturbances on one day in 2007 that the mariculture company challenged), and four of the 1996 disturbances (nine total) from the analysis””*

Goodman’s allegation is incorrect. We sent the editor this sample paragraph before final re-acceptance of the paper. The editor approved, and it was included in the final paper. See attached email to the MMS editor in **Appendix C** of this correspondence.

Furthermore, we addressed each one of Dr. Goodman’s September 2008 criticisms directly with the MMS Editor, who in addition to reviewing them himself, passed them on to the Associate Editor of MMS and the two original peer reviewers. Thus, the notion that we cherry-picked data or misled the reviewers in any way is incorrect. In fact, we pointed the reviewers and editor to the DOI Inspector General report. The MMS editor also corresponded directly with the NRC and The California Department of Fish and Game. We also offered to the MMS Editors our raw data and NPS pinniped database, so they could conclude for themselves whether the datasets were credible, that our handling of the data was appropriate, and whether Dr. Goodman’s allegations had any merit.

Dr. Goodman also alleges that by our performing the correlations without some of the disturbances in order to show their robustness of the correlations, we are acknowledging that these disturbances are false. This is incorrect. After discussion with the MMS editor, we chose to include this statement (quoted above) to show that even if some disturbance data are questioned, the positive correlation still exists when those data are not considered. Dr. Goodman had previously disputed only the NPS Trip Report of April 26, 2007 conducted by S. Allen. To demonstrate the robustness of the analyses to small sample size, we removed several disturbances, including the April 26 survey.

#### **4. Inclusion of the 1996-1999, and 2008 disturbance data in the second paper.**

Dr. Goodman states on page 2 that:

*“In Becker II (the second revised version of the Becker et al. paper), Becker cherry-picked the data by arbitrarily going back to 1996 (instead of just 2000) to claim six oyster related disturbances in 1996 (and none in 1997-1999). Four of those six disturbances were fabricated.”*

We incorporated more years at the suggestion of Dr. Goodman’s comments to the NRC and MMS in September of 2008. There is no cherry-picking as we included all appropriate data. The 1996-1999 data were not in the database upon preparation of the first version of the MMS paper, but we were able to compile and access it for the revised second submission. Similarly, we had not looked closely at the 2008 disturbance data prior to the first submission, but revisited it for the revision.

On page 2 of his report, Dr. Goodman asserts that we falsified disturbance records in 1996 to improve our statistical results and create a more dramatic graph.

The NPS pinniped database indicates **four** disturbances in 1996. Due to Dr. Goodman's query, we have realized that we accidentally included two *potential* disturbances from 1996 in our calculations since they had a "disturbance = "Yes" entered in the database. In fact, there were 4 oyster related disturbances and 2 oyster related *possible* disturbances. We regret this error but it nonetheless does not alter the statistics or conclusions in any way. We will inform the Editor of MMS of our error and seek his guidance on whether a correction is warranted.

Nevertheless, the removal of two disturbances in 1996 does not change any conclusions or patterns described in the paper (see **Appendix D**). 1996 is still the year with highest rate of disturbance, and the significance and correlation of the oyster harvest-disturbance rate remain exactly the same since we used ranks tests for the analysis. See **Appendix D** for original and new plots. Thus, Dr. Goodman's allegation that we purposely increased the number of disturbances in 1996 to "help" our statistics or create a more dramatic graph is inconsistent with the facts and the analyses.

We assume Dr. Goodman only counts two disturbances in 1996 (rather than four) because he characterizes two of the motorboat related disturbances as non-oyster related while we consider these to be oyster related. As is well known, only oyster company motor boats are allowed in the Estero without special permission and this closure has been in effect since the early 1990s. Goodman's statement that "*many fishing and recreational motorboats enter the estero*" on page 17 of his letter is not supported by park records including law enforcement case reports, harbor seal monitoring field notes and park staff observations.

Finally, cherry-picking is alleged because we did not analyze other disturbance sources in the estero (other than to note the relative frequency of human related disturbance is higher in the lower estero because some of lower estero haul-out sites are attached to the mainland). On November 12, we provided the NRC with a justification for solely analyzing the mariculture related disturbances and we explained in the MMS paper. See **Appendix E**.

##### **5. Allegation that NPS did not follow stated QA/QC protocols:**

Dr. Goodman states on page 12 that:

*"April 29, 2007: Disturbance Survey Violated NPS Protocols."*

Dr. Goodman challenged the validity of the survey based on tide height and the experience of the volunteers on April 29, 2007.

- The MMS paper clearly states that *count* data were filtered for date, observer experience, tide and weather. However, the disturbance data were not subject to these criteria. Disturbances can be recorded at any tide, weather, or observer experience level.

Dr. Goodman appears to have misunderstood NPS procedures for reviewing harbor seal data prior to analysis. All data that we receive from volunteers are entered into the database and prior to analyzing and reporting the data, we review the *count* data to see if any of the surveys were of potentially poor quality and should be discarded from our analysis. Records are never discarded from the database itself, which remain important NPS records.

Each survey is evaluated and assigned a "HighQualityCount?" value of "yes" or "no". A survey may be of poor quality and assigned a value of "no" for the following reasons:

- poor visibility
- not all subsites were surveyed
- poor observer quality of *all* survey participants
- other comments noted on the datasheet, especially in regard to weather conditions

In addition, for the purposes of the Becker et al. paper, we limited the count data used to surveys collected on days with a 2.0 ft tide or less. For our analyses, we extracted the maximum count per survey, and we checked to ensure that the count occurred at a reasonable time in relation to the low tide time.

A key point that Dr. Goodman misrepresents is that although we review each disturbance record in the database for accuracy against the paper data sheet, we do not enforce the additional, above QA/QC procedures on the disturbance data. This is clearly outlined in methods section of the MMS paper. We have confidence that our first year observers, all of who must attend trainings, have the ability to observe, for example, a motorboat flushing harbor seals off a sandbar. Furthermore, it is irrelevant whether or not that disturbance occurs in poor weather conditions or at a high or low tide.

- Dr. Goodman asserted that the volunteers (Mr. and Mrs. Leite) who surveyed on April 29, 2007 did not have more than one year of survey experience and that their first survey was on March 24, 2007 (page 15). This is in fact the date of their first survey in *Drakes Estero*. The Leites, however, began volunteering with our program in April of 2006, spending most of their time at Bolinas Lagoon and Duxbury Reef. In addition, March 24 was not their first survey of the 2007 monitoring season. The databases that store these surveys were delivered to Dr. Goodman in his FOIA requests dated August 2007 and January 2008. In short, the Leites did meet our criteria of having at least one year of prior experience in our program before including their data for analysis.

#### **6. Statement that the MMS paper title is incorrect.**

Dr. Goodman states on page 25 that:

*"Becker cherry-picked the 1996 data, but never changed their title or abstract, which still begins with 1997."*

The paper clearly models data only from 1997-2007, as the title describes. As is clearly explained in the paper, we include disturbance (but not *count*) data from 1996 and 2008. This data is not modeled but only used to report disturbance patterns. Count data were not complete enough to pass QA/QC protocols for 1996, and we did not model 2008 data since it was after reaffirmed guidelines that DBOC avoid seal areas during the breeding season. In fact, eliminating disturbance data that we had available (e.g., 1996 and 2008) would actually be cherry picking. It is difficult to see how including all available data is cherry picking.

### **7. Application of Spearman ranks test to test for correlation between disturbance rate and oyster harvest:**

Dr. Goodman states on page 19 that:

*"Becker told us that "This correlation is highly robust to sample size." As framed by Becker, this may be technically correct given that he cherry-picked both the data he included and the data that he excluded, but it is highly misleading. It is not because the data are so strong, but rather because this kind of correlation (in this case using 1-tailed Spearman ranks test) is a weak test, and can be driven by a single anecdotal observation."*

Contrary to Dr. Goodman's assertion, the S-plus statistical software user's manual indicates that:

*"Because both Kendall's and Spearman's methods are based on ranks, they are not so sensitive to outliers and non normality as the standard Pearson estimate."* (Insightful 2003).

Furthermore, in the MMS paper, our demonstration of the removal of several disturbances with continuing significance proves that the test is not succumbing to the effects of a "single anecdotal observation". Other correlation tests show similar results. Specifically, Pearson correlations (although not appropriate) and Kendall's Tau (which is an appropriate test).

Dr. Goodman also indicates that we must have gone back to the 1996 data only to get a stronger correlation (Page 22). However, if only considering the disturbance rate from 2000 – 2008, the P value is similar ( $P < 0.03$ ), and the Spearman correlation is actually higher ( $r_s = 0.69$ ) than the full time series. Thus, there is no basis for the allegation that we cherry picked data (omission or commission) to improve our statistical results.

### **8. Conclusion**

We note that in previous iterations of his statements, Dr. Goodman criticized our statistical modeling techniques, which are all standard professional practice. His critiques

were closely examined by editors and peer reviewers at MMS and flatly rejected. He now primarily focuses on data handling and alleges we falsified data that were independently collected by several different volunteers and NPS staff. We find Dr. Goodman's statements misguided as evidenced by the conclusions of both the editors of Marine Mammal Science and the DOI Inspector General that there was no evidence of scientific misconduct (see **Appendix F**). Separately, the National Research Council refused to consider his allegations of scientific misconduct. Lastly, during the preparation of the MMS paper and NRC presentations, the database we were working with was available to several different groups, including Dr. Goodman and the NRC. We also offered it to the editor of Marine Mammal Science. Thus, there is no basis for the allegation that we are manipulating data; the raw data are available for these groups to see and arrive at their own conclusions about our analyses and interpretation. Nevertheless, we treat with utmost seriousness Dr. Goodman's persistent allegations of scientific misconduct.

We stand by our procedures and methodology, which are scientifically sound. While we welcome critiques of our scientific studies, the pattern of Dr. Goodman's attacks is concerning insofar as it suggests that his primary goal is not to improve the scientific methodology used by the Park, but rather to cast doubt on the credibility of particular individuals. We value the hard work of the park volunteers, and are saddened to see their veracity questioned in so untoward a manner. We will continue to defend the integrity of our scientific studies and programs.

#### **References**

DOI-OIG. 2008. Investigative Report. Point Reyes National Seashore. U.S. Dept of Interior, Office of Inspector General. Report issued on July 11, 2008. 54 pp.

INSIGHTFUL. 2003. S-PLUS 6 for Windows Guide to Statistics, Volume 1, Insightful Corporation, Seattle, WA.

JOHNSON, A., AND A. ACEVEDO-GUTIERREZ. 2007. Regulation compliance by vessels and disturbance of harbor seals (*Phoca vitulina*). *Canadian Journal of Zoology* 85:290294.

SURYAN R. M., AND J. T. HARVEY. 1999. Variability in reactions of Pacific harbor seals, *Phoca vitulina richardii*, to disturbance. *Fisheries Bulletin* 97:332–339.

# APPENDIX A

## Appendix A

### NPS Review of Tidal Patterns and Harbor Seal Behavior in Drakes Estero

On January 18, 2009, Dr. Goodman submitted a document to the National Research Council entitled “New Information Shows that the National Park Service Committed Scientific Misconduct in the Documents it Presented to Your Panel”.

Dr. Goodman devotes much of this document to discrediting harbor seal data collected in Drakes Estero on April 29, 2007. On this date, volunteers noted two disturbances by Drakes Bay Oyster Company (DBOC) when workers in a motorboat dropped oyster bags on a sandbar. Dr. Goodman challenged the validity of the April 29 survey based in part on the tide chart for that day and subsequent analysis of tidal patterns in Drakes Estero. Dr. Goodman concluded that no such disturbances could have occurred on April 29, 2007 because the tide was too high.

The April 29 survey began at 9:30 AM and concluded at 3:15 PM, as noted on the datasheet for that day. The harbor seal monitoring program standardizes its tides to San Francisco (Golden Gate Bridge), and the low tide for April 29 was 1.46 ft at 4:25 PM. The first DBOC disturbance occurred at 12:50 PM from DBOC’s motorboat. The observers noted that at sandbar UEN, “mom and pup flushed when boat accelerated toward Bull Point from N. end of OB channel after throwing out bags.” The second DBOC disturbance, again at sandbar UEN, occurred at 1:40 PM when the “boat returned, threw more bags, left again.” The observers conducted the first and only full count of the harbor seals in Drakes Estero at 2:15 PM, documenting a total of 751 harbor seals. The events of the April 29 survey are summarized in Table 1.

Table 1. Summary of significant events on April 29, 2007. Low tide is standardized to San Francisco (Golden Gate Bridge).

Time	Time before low tide	Survey Event
9:30 AM	6 h 55 m	Start of observations.
12:50 PM	3 h 35 m	First DBOC disturbance at sandbar UEN.
1:40 PM	2 h 45 m	Second DBOC disturbance at sandbar UEN.
2:15 PM	2 h 10 m	Complete harbor seal count.
3:15 PM	1 h 10 m	End of observations.

DBOC attempted to better understand how the tides may have looked on April 29, 2007 by asking John Hulls of the Point Reyes Light newspaper to conduct an experiment. Mr. Hulls selected tides on January 1 and 2, 2009 and measured the high tide at sandbar OB to determine that there was an approximate 1.3 hr lag compared to the Point Reyes NOAA buoy tide chart. More importantly, Mr. Hulls measured the tidal heights at which the very highest points on UEN and OB first rose above the water, which were at +3.0 ft and +2.0 ft, respectively. Based on Mr. Hulls’ observations in January 2009, Dr. Goodman went back to April 29, 2007 and concluded that the sandbars in Drakes Estero must have been underwater at the time of the disturbance events on that date and, therefore, no seals could have been present to be disturbed.

Dr. Goodman and Mr. Hulls missed several important points in their attempts to 1) model the tides at subsites OB and UEN in Drakes Estero and 2) subsequently predict harbor seal use of these subsites at certain tide levels. We find Mr. Hulls' experiment without merit and find it unreasonable for Dr. Goodman to discredit the April 29, 2007 survey based on an incomplete investigation of tidal and seal haul-out relationships.

Mr. Hulls and Dr. Goodman failed to recognize common harbor seal behavior which invalidates their conclusions that there were no harbor seals present to disturb on April 29, 2007. Researchers of harbor seals at Point Reyes and elsewhere have noted the presence of seals hovering nearby and over the haul out sites before sandbars are exposed by low tide and after sandbars are submerged by rising tides. This is particularly important for females with pups where they can nurse their pups in shallow waters. Flushing harbor seals from a submerged sandbar is entirely possible, and can be especially detrimental during the pupping season.

In regards to the tide experiment, we believe that a sample size of two dates is too small to develop these types of tidal predictions. Second, coastal winds and barometric pressure, which may affect tidal water level, were not taken into account. There can be a marked difference between the observed water level and predicted tidal water level due to winds and barometric pressure along coastal California (Largier et al. 1993). Lastly, it is incorrect to assume that the sandbar heights and configurations did not change between 2007 and 2009. The sandbars naturally shift on a seasonal and annual basis, and larger scale shifts may dominate for several years. In summary, tidal modeling and developing tidal predictions is a sophisticated science that must incorporate a variety of atmospheric, hydrographic and oceanographic driving forces. The NPS relies on our colleagues at NOAA, USGS, and university experts for this type of guidance.

The NPS has conducted its own review of the April 29, 2007 survey and associated tides because of the questions raised by Dr. Goodman. However, the NPS review of the survey took a different approach than Dr. Goodman and Mr. Hulls. We identified six dates during the peak breeding season in 2008 that closely match the tide chart for the April 29 survey. Table 2 shows that the dates selected (April 17-19, 2008 and May 2-4, 2008) more closely match April 29, 2007 than the tides selected by Mr. Hulls for study on January 1 and 2, 2009. Harbor seal use of Drakes Estero, particularly in the middle estero where the April 29 disturbances occurred, is reduced in January, and we felt that it was more appropriate to select dates during the harbor seal breeding season for comparison. Harbor seals haul out more often and for longer time periods during the breeding and molt seasons from March 1 to July 31.

For the six dates selected by NPS for review (Table 2), the NPS examined date and time stamped photographs taken of Drakes Estero by remote camera. The remote camera was on-site at Drakes Estero for the majority of the 2008 breeding season, capturing images every minute from 7:00 AM to 7:00 PM. The camera view encompassed the "lateral" channel with sandbar OB in the foreground.

Examination of the photo series for the selected dates shows that for a low tide similar to that on April 29, 2007, the OB sandbar becomes exposed at the low tide between approximately 3.5 and 2.5 hours prior to the low tide for San Francisco (Table 3).

Table 2. NOAA low tide data for April 29, 2007 and a series of dates selected for study by NPS and DBOC. Tides are standardized to San Francisco (Golden Gate Bridge).

<b>Date</b>	<b>Low Tide Time</b>	<b>Low Tide Height</b>	<b>Type</b>
April 29, 2007	4:25 PM	1.46 ft	Original Survey
April 17, 2008	4:22 PM	0.89 ft	This Study
April 18, 2008	4:56 PM	1.28 ft	This Study
April 19, 2008	5:29 PM	1.68 ft	This Study
May 2, 2008	3:30 PM	1.01 ft	This Study
May 3, 2008	4:13 PM	1.37 ft	This Study
May 4, 2008	4:56 PM	1.74 ft	This Study
January 1, 2009	8:16 AM	2.82 ft	DBOC Study
January 2, 2009	9:17 AM	2.51 ft	DBOC Study

Table 3. Time that harbor seals are first observed at sandbar OB and time that OB is just exposed by the falling low tide on six dates chosen for review by NPS. The time before the low tide is included in parentheses. Tides are standardized to San Francisco (Golden Gate Bridge).

<b>Date</b>	<b>Time of First Harbor Seals</b>	<b>Time Sandbar First Exposed</b>	<b>Low Tide Time</b>	<b>Low Tide Height</b>
April 17, 2008	12:23 PM (3h 59m)	1:17 PM (3h 5m)	4:22 PM	0.89 ft
April 18, 2008	2:01 PM (2h 55m)	2:15 PM (2h 41m)	4:56 PM	1.28 ft
April 19, 2008	1:43 PM (3h 46m)	2:25 PM (3h 4m)	5:29 PM	1.68 ft
May 2, 2008	11:52 AM (3h 38m)	11:58 AM (3h 32m)	3:30 PM	1.01 ft
May 3, 2008	12:54 PM (3h 19m)	13:05 PM (3h 8m)	4:13 PM	1.37 ft
May 4, 2008	2:18 PM (2h 38m)	2:40 PM (2h 16m)	4:56 PM	1.74 ft

In summary, the NPS concludes that subsite UEN may have been slightly underwater at the time this subsite was first disturbed at 12:50 PM on April 29, 2007, which occurred about 3.5 hours before the low tide (Table 1). However, if we accept the findings of Dr. Goodman and Mr. Hulls, who conclude that the UEN sits 1 ft higher than OB, then based on the NPS photographs, subsite UEN would have been well exposed by the time of the first disturbance.

In regards to harbor seal use of the sandbars, on each of the six dates selected by the NPS, harbor seals are clearly seen in the photographs using the OB sandbar *before* the sandbar is actually exposed by the low tide (Table 3). On April 17, 2008, for example, seals were present on the sandbar 40 minutes before it was first exposed by the low tide. By the time the OB sandbar was just exposed, up to a dozen harbor seals could already be seen resting on the sandbar. If Mr. Hulls had conducted his tidal experiment in Drakes Estero at the correct time of year, he too would likely have observed this pattern of harbor seal behavior and drawn different conclusions about the validity of the April 29, 2007 disturbances.

Although our review indicates that the UEN sandbar may have been underwater at 12:50 PM on April 29, 2007, the disturbance record for that day remains reliable based on our review of tidal data and seal behavior at that site. By the time the second DBOC disturbance occurred on April 29, 2007 at 1:40 PM and the complete harbor seal count occurred at 2:15 PM, the sandbars were, without question, well exposed. Although Dr. Goodman insists that “swimming harbor seals cannot be flushed off of a sandbar that is underwater”, we have photographic documentation to the contrary.

To illustrate the findings of our inquiry, Figures 1-3 depict sandbar exposure and harbor seal presence at sandbar OB on a falling tide. Although we do not have similar images taken of sandbar UEN, we believe that these photographs provide supporting evidence that the April 29, 2007 survey was accurate for both disturbance and count data.

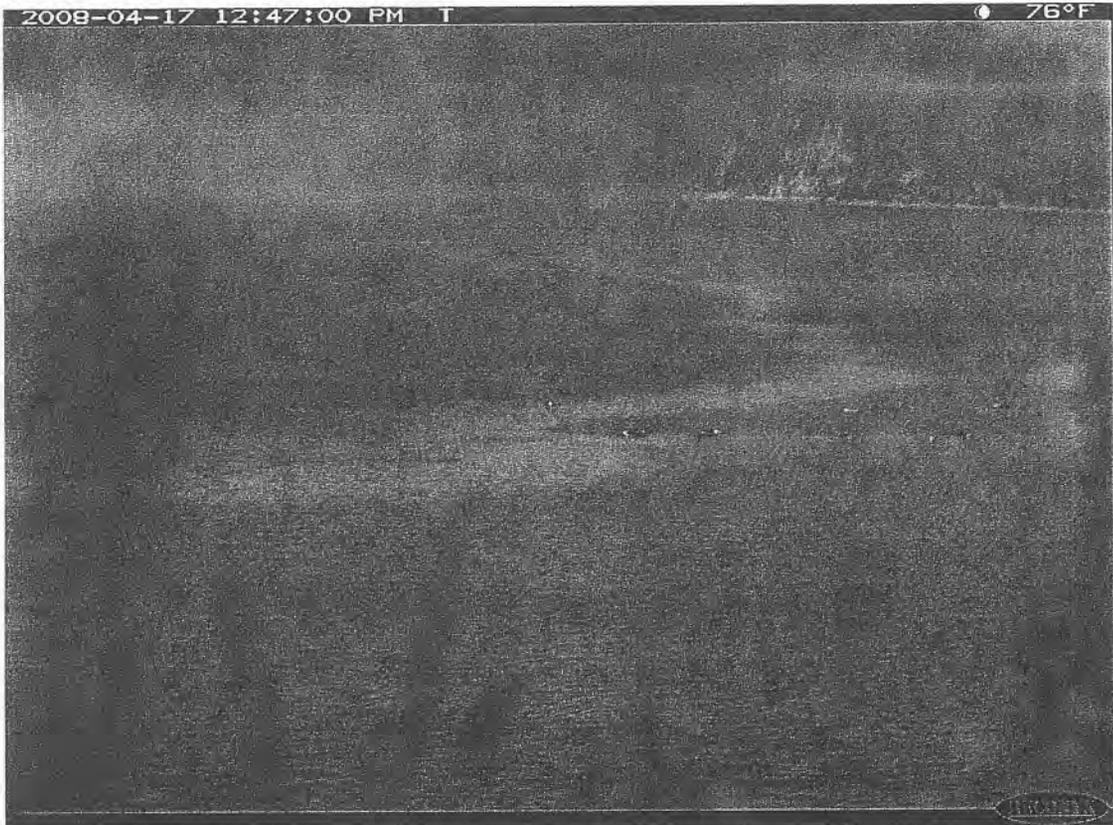


Figure 1. Harbor seals present on sandbar OB prior to exposure of the sandbar to the falling tide. Photograph taken at 12:47 PM on April 17, 2008, 3 hours and 35 minutes prior to a low tide of 0.89 ft at San Francisco. The first disturbance on April 29, 2007 also occurred 3 hours and 35 minutes before the low tide of 1.46 ft.



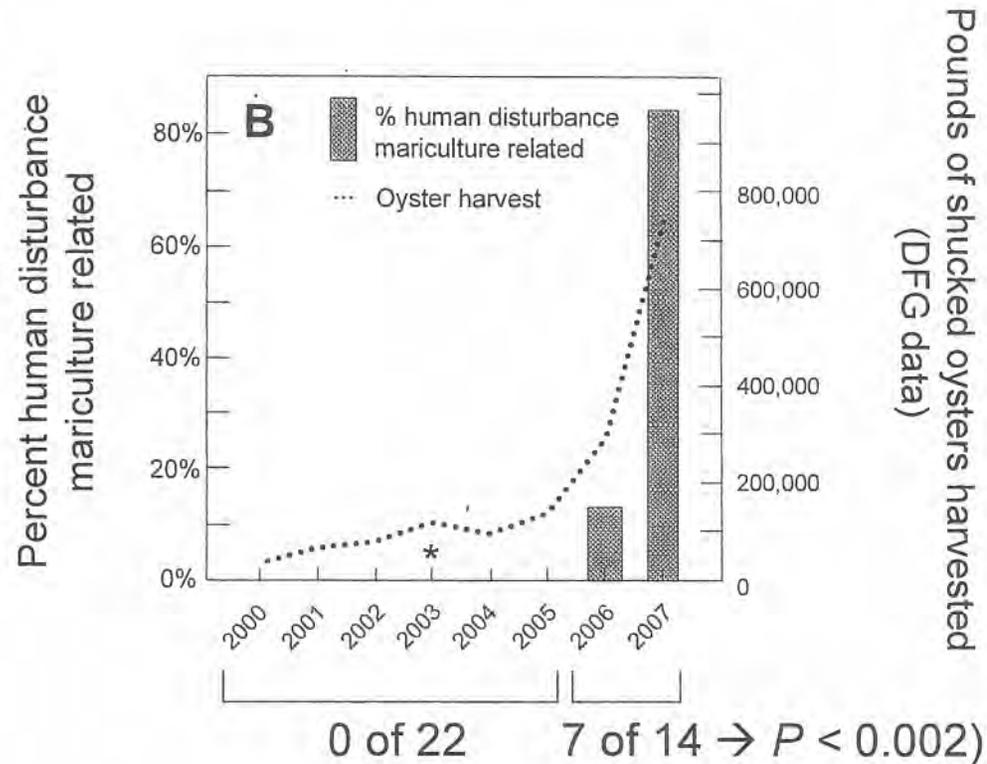
Figure 2. Harbor seals present on sandbar OB on the falling tide. Note paired heads of seals which are likely females with pups. Photograph taken at 2:44 PM on April 19, 2008, 2 hours and 45 minutes prior to a low tide of 1.68 ft at San Francisco. The second disturbance on April 29, 2007 also occurred 2 hours and 45 minutes before the low tide of 1.46 ft.



Figure 3. Harbor seals present on sandbar OB on the falling tide. Photograph taken at 1:20 PM on May 2, 2008, 2 hours and 10 minutes prior to a low tide of 1.01 ft at San Francisco. The full count on April 29, 2007 also occurred 2 hours and 10 minutes before the low tide of 1.46 ft.

## APPENDIX B

# Increase in percentage of human-related disturbance in upper estero (OB, UEN, UEF) due to mariculture: 2000 - 2007



- High statistical power ( $1-\beta > 0.91$  at  $\alpha = 0.05$ )
- No mariculture related disturbances in middle-lower estero
- Human disturbance is less frequent in upper estero (~1-2/subsite/yr) than the middle-lower estero (~5 subsite/yr)

\* Possibly one disturbance in 2003

## APPENDIX C

Dear Dr. Boness,

Below is an outline of the substantive changes to ms #2668 discussed with either you or proposed by us and accepted by the reviewers. Please note that I used the previous MMS copy edited version as a starting point, hence the formatting style. Because of this, footnotes appear at the end of the document as endnotes. I have listed the most substantive changes in **bold**.

**Introduction:**

No substantive changes

**Methods:**

1. **We now use the updated oyster harvest value for 2007.**
2. **Lines 174-185: We now include disturbance data for 1996 – 2008.**  
Previous paper only had 2000-2007. Count data modeled for 1997-2007 (as before) but we discuss 1996 and 2008 data in the discussion.
3. **Lines 207 – 212: Description of new tests used to analyze disturbance data as proposed in previous MMS correspondence.**
4. Lines 219-240: Clarified data handling.
5. Lines 257-265: Clarified density dependence data used in models.
6. **Lines 266-275: Description of how we look at density dependence on a daily basis but also investigate effect on an annual mean basis.**  
**Description of how we model oyster harvest in the same year, but also investigate 1-year lag.**
7. Lines 303-307: Description of regression tree methods.

**Results:**

1. Lines 312-318: Shortened first paragraph
2. **Lines 319-329: Results of oyster harvest vs. disturbance correlation and rank tests. These are all now based on disturbance rate rather than frequency. We illustrate here that omitting up to nine of the disturbances (including the one in 2006 and 2/3 of those 2007) still would result in a significant increase in disturbance with increase in oyster harvest. Also see Figure 2B. We also note that this includes on lines 325-326:**  
“including two disturbances on one day in 2007 that the mariculture company challenged”. Please let us know if this is OK or if you have a different idea for this statement. Alternatively, we could leave the parenthetical statement out and just leave the part that illustrates dropping many of the disturbance events still results in a significant relationship.
3. Lines 333-351: New GLM results using updated 2007 oyster harvest value and no time lag for oyster harvest. All model rankings are similar to previous paper.
4. Lines 355-364: GLM analyses also redone to test 1-year vs no year lag effects of oyster harvest, and using density dependence as a daily or annual value. All results were robust to these different approaches with Oyster always being

important in the best models. We focus on same year oyster harvest values, though.

5. Lines 366-373: UEN best model (although weak fit) includes oyster harvest.
6. Lines 374-381: We now report a regression tree that corroborates GLM models. Tree shows lower counts with higher oyster harvest. This replaces prior 2002-2004 to 2005-2007 2-sample tests (t-test, Wilcoxon) comparisons in previous version.

#### Discussion:

1. Shortened first paragraph.
2. Lines 463-476: Discussion of potential reasons why lower performance of predictive model (OB model predicting UEF) when oyster harvest is high.
3. Lines 527-532: Discussion of middle-lower estero counts related to density dependent effects at upper subsites.
4. Lines 546-553: Presentation of unmodeled 1996 count data at OB and how it is low during the highest oyster harvest and the highest disturbance rate during the study period.
5. **Lines 554-577: Discussion of how small increase in 2008 subsite OB count data is consistent with restricted mariculture activity near the subsite due to a new (for 2008) California Coastal Commission guideline, and how disturbances subsequently dropped to only 1 in that year. We also suggest that this operational shift may weaken the simple use of "oyster harvest" as a proxy for modeling counts in the upper estero beyond 2007. Nonetheless, the modeling for 1997-2007 is unaffected.**

#### References:

1. Added Allen *et al.* 1989 (ENSO effects on seals) and Bejder *et al.* 2006 (Disturbance causing local redistribution of Dolphins).

#### Tables:

1. We have removed table 1, as figure 2B now illustrates these patterns and tests. We indicate in the results that human disturbance rates are higher in middle-lower estero.
2. Table 1 (Table 2 in previous version): updated with all new models, rankings are essentially the same.
3. Table 2 (Table 3 in previous version): updated with new best model coefficients.

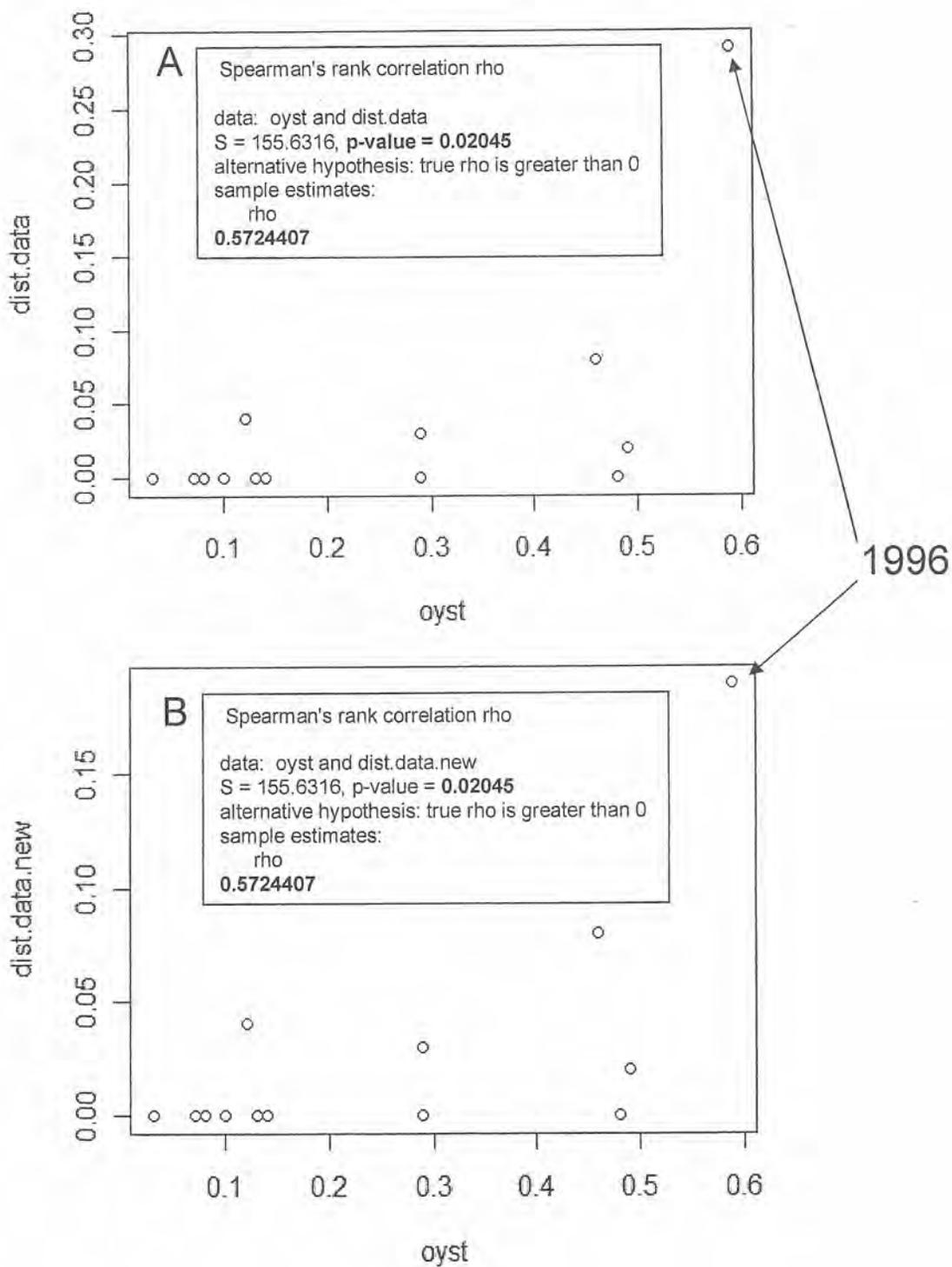
#### Figures:

1. Figure 2A: Now has corrected 2007 oyster harvest value.
2. Figure 2B: New, as proposed to reviewers in previous MMS correspondence. Replaces previous figure 2A.
3. Figure 3A: Similar to previous figure 3A, but is a scatter plot rather than a bar chart.
4. Figure 4: Regression tree replaces bar chart showing recent declines at OB. The new model is described in the text.

5. Figure 5: Drakes Estero Panel has been redone. There was a scaling problem (software bug) in the previous version when drawing multiple panels at the same scale that showed ~15-20% fewer seals than reality at only drakes estero. We also added black bars to the Drakes Estero panel to indicate count pattern for the middle-lower estero used for density-dependence calculations.

## APPENDIX D

Appendix D. (A) Original plot used in MMS paper with 6 disturbances in 1996 and (B) corrected plot with 4 disturbances in 1996. Note that 1996 is still by far the highest point, which is why the statistics have *no difference* between datasets. Note that the y-axis scale changes between plots. In the first version (MMS paper), we accidentally counted two *potential* disturbances as *actual* disturbances. "Oyst" is annual lbs. oysters harvested  $\times 10^{-6}$ . See text for details.



## **APPENDIX E**

11/12/2008

To: National Research Council, Panel of Mariculture in Drakes Estero.

From: Ben Becker, David Press, Sarah Allen; Point Reyes National Seashore.

**Re: Rationale for *not* modeling disturbances and counts in the entire Drakes Estero.**

Becker, Press and Allen (MMS, in press) only modeled and considered disturbances in the upper estero (near oyster harvest activities) for the following reasons.

1. Subsites A, A1, OB, and UEN are the primary pupping sites for the Estero (see Figure 1). Thus, with one (and perhaps 2, OB and UEN) important pupping subsite potentially impacted by oyster harvest activities, this merited further investigation. Processes at subsite A were clearly related to attachment to the mainland. A1 was increasing (perhaps due to displacement from other sites such as A or others).
2. Plots of all 8 subsites in Drakes Estero from 1997 – 2007 indicate that the only subsites which experienced a significant decline since 2004 were subsites OB, UEF, and A (Figs 1-3). Subsite A was clearly reduced after attachment to the mainland in or around 2004 which resulted in several coyote predation events. Subsites OB and UEF had no other apparent changes other than proximity to increased oyster activities/harvest. DEM had a decline in 2006-2007, but had high inter-annual variation during the entire time series. Variation at DEM was likely because of changes in size and proximity to mainland due to wave action and tides at the mouth of the estero. Subsite L increased over time (especially in adult use), potentially related to increased visitor education on avoiding seal disturbance at the Limantour Beach access.
3. There was a clear and significant (proportions test or Fisher's exact test) increase in mariculture related disturbances in the upper estero (OB, UEF, UEN). During March-May of 2000-2004, anthropogenic, non-airplane disturbances were limited to one kayak, one clammer, and one oyster related. Then from March-May, 2005-2007, all anthropogenic, non-airplane disturbances, were related to mariculture with one in 2006 and six in 2007. This increase in mariculture related disturbances coincided with a decrease in adult and pups seals counts at subsite OB (and UEF), which warranted further investigation.
4. It is essential to model density-dependence. However, if considering all subsites, then it would not be possible to use the lower-middle estero as a control for density-dependence since all counts could not be assumed independent of the other seven sites (seals do of course move around and a loss at one site would likely result in an increase at another site). Furthermore, other regional colony data prior to 2000 had not been fully compiled before preparation of the manuscript. Nonetheless, local density-dependence (lower-middle estero) is more desirable since it more likely to reflect local processes in the estero because it (1) eliminates other confounding factors such as disturbance effects at other colonies, and (2) is closer, more similar habitat.

11/12/2008

5. Modeling all sites and linking to mariculture would be a form of data dredging (several reviewers indicated this). We chose instead to follow an *a priori* multiple competing hypotheses approach.
6. Modeling disturbances without *a priori* hypotheses can be misleading because disturbance events require both a disturbance source *and* the presence of seals to disturb. This is illustrated clearly at subsite A: as the island attached to the mainland and seals began to abandon the subsite after 2004, disturbances also decreased.

*Three figures follow*

Fig 1. Mean (SE) seal pups at subsites in Drakes Estero during April 15 – May 15 of each year from 1997 - 2007.

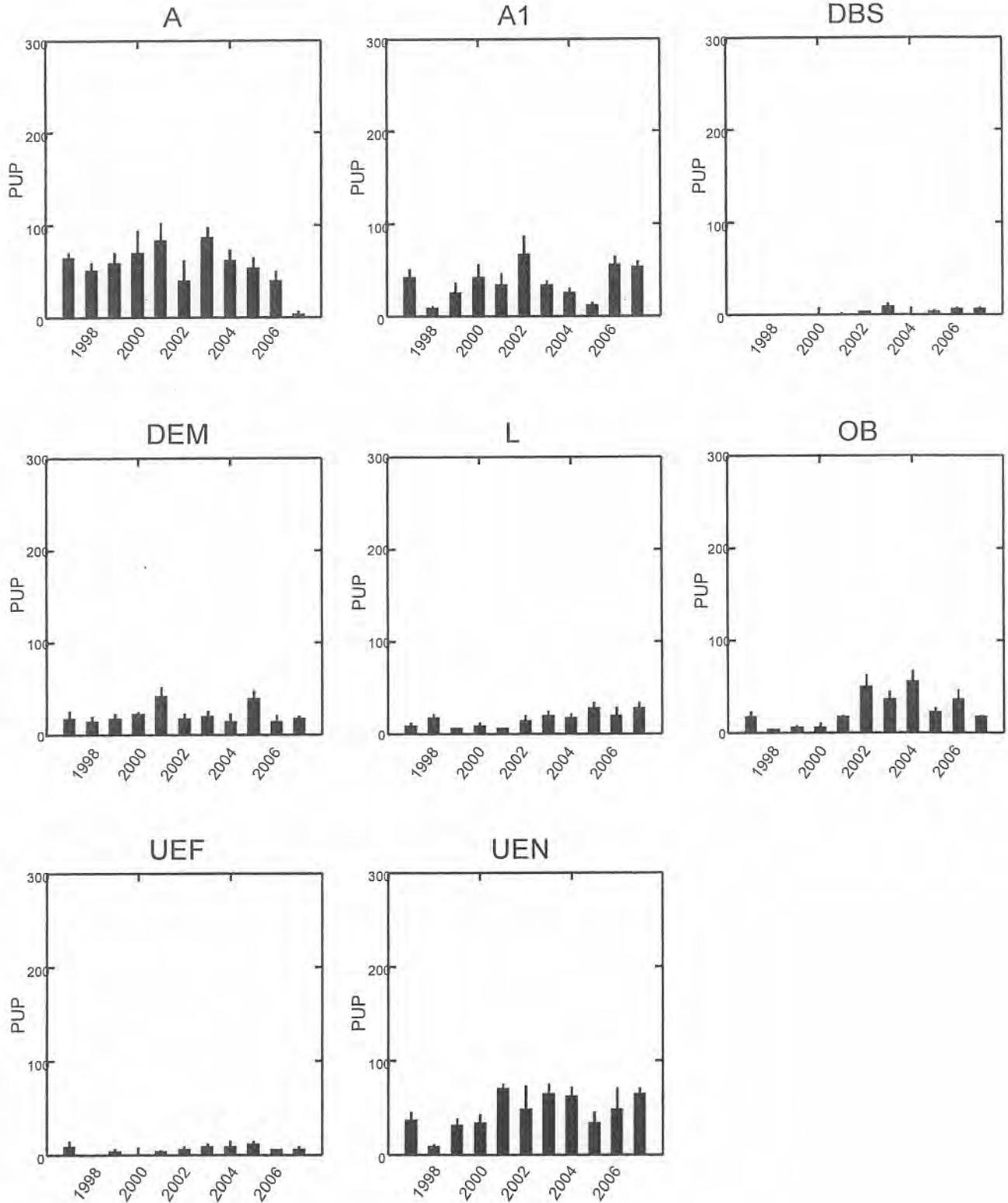


Fig. 2. Mean (SE) **adult** seals at subsites in Drakes Estero during April 15 – May 15 of each year from 1997 - 2007.

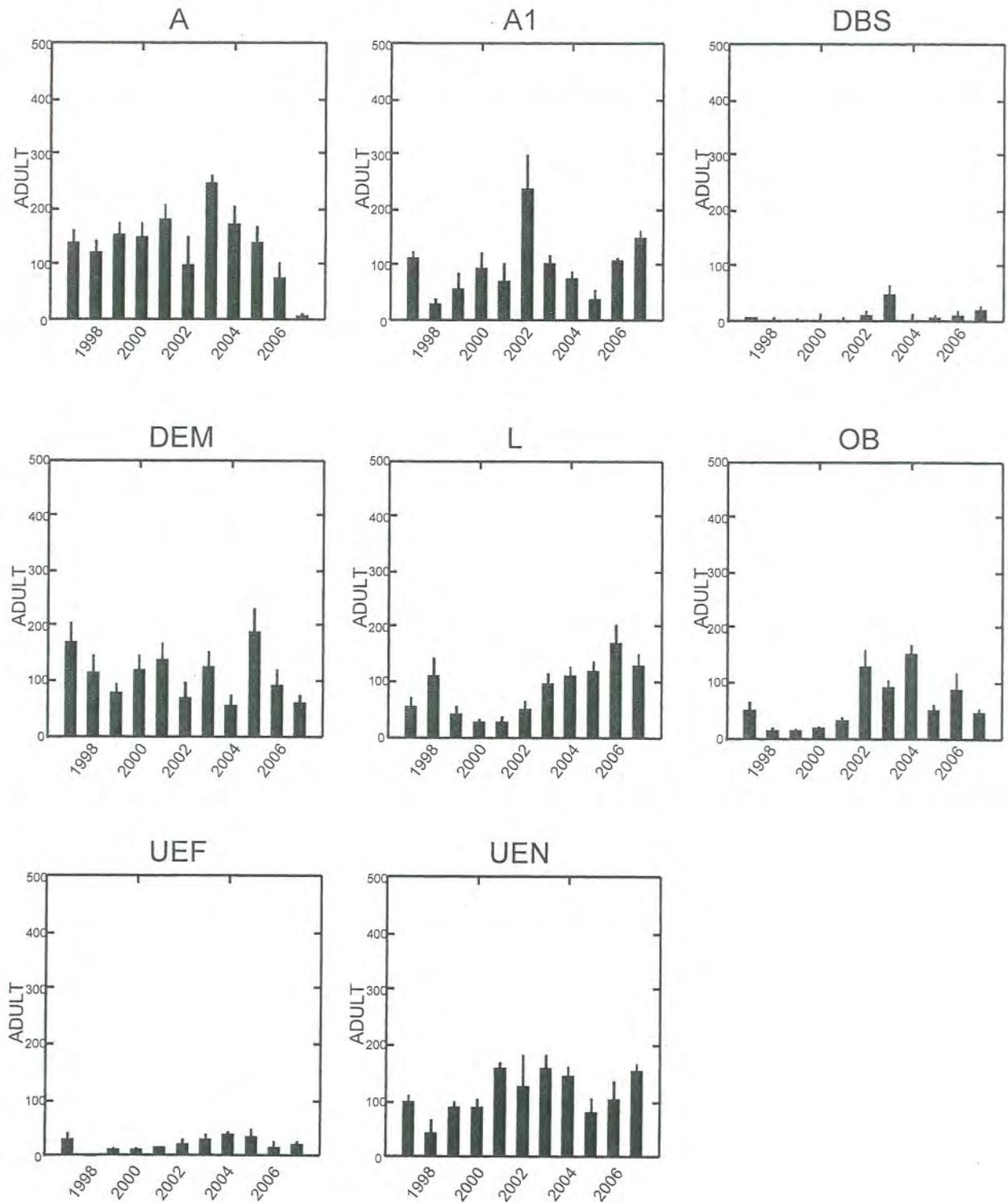
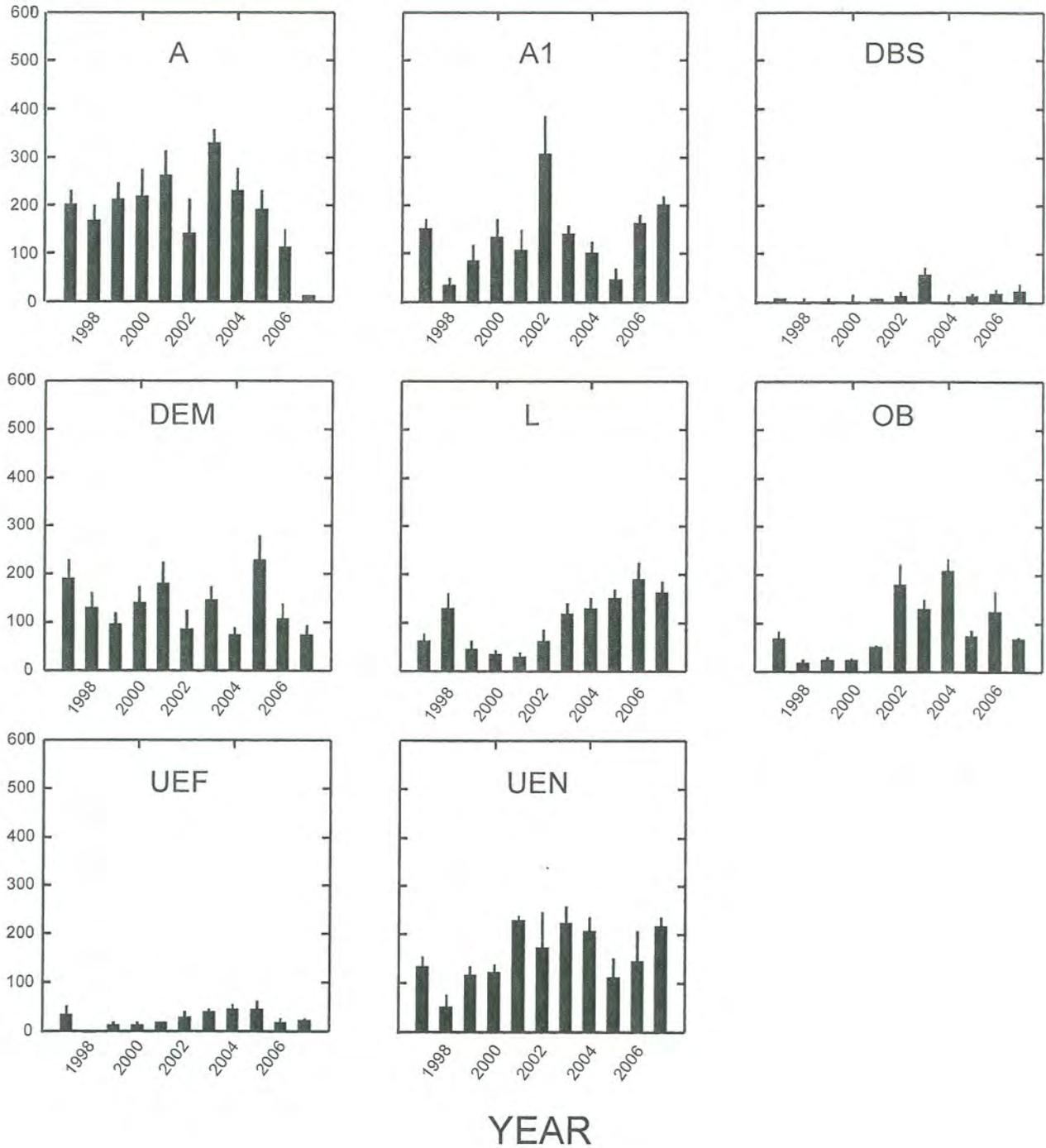


Fig 3. Mean (SE) **total** seals at subsites in Drakes Estero during April 15 – May 15 of each year from 1997 - 2007.



## APPENDIX F



"Daryl Boness"  
<mmsci@megalink.net>  
10/16/2008 08:56 AM

To <Ben\_Becker@nps.gov>  
cc "Marine Mammal Science"  
<marinemammalscience@gmail.com>  
bcc

Subject Decision on "Modeling the effects of El Niño, density dependence, and disturbance on harbor seal counts..."

History:  This message has been replied to.

Dear Dr. Becker:

I have now received input from some of the original reviewers and Associate Editor on your replies to the concerns and questions raised by Dr. Corey Goodman (and others with similar points being made) concerning your in press paper entitled "Modeling the effects of El Niño, density dependence, and disturbance on harbor seal counts in Drakes Estero, California: 1997-2007." I have also spoken (or emailed) with Dr. Susan Roberts of the NRC and Dr. Tom Moore of the California Fish & Game. I am satisfied that there is no basis for considering pulling your paper from Marine Mammal Science for ethical grounds (scientific misconduct). The reviews I received based on your responses to Dr. Goodman's questions and your new analyses suggest there is no need to even revise your manuscript before publication should be allowed. I concur with the reviewers that the paper should be allowed to move forward with publication, but I also believe it would be best to include the updated information and improved analyses that you have proposed in your emails to me. In the revised paper, you should acknowledge the questioned data point and at least note that the conclusions would not change whether this point is included or not. Since you have information available on the 2008 harbor seal and oyster harvest levels I would also like to see you include in the discussion a statement about how this might affect your conclusions. It would be helpful if you identified in the revised paper where you have made the substantive changes as you indicate you will in your email replies.

I will process your revised paper as quickly as possible once I receive it. I appreciate your cooperation in this unusual situation regarding your paper that was accepted for publication in Marine Mammal Science.

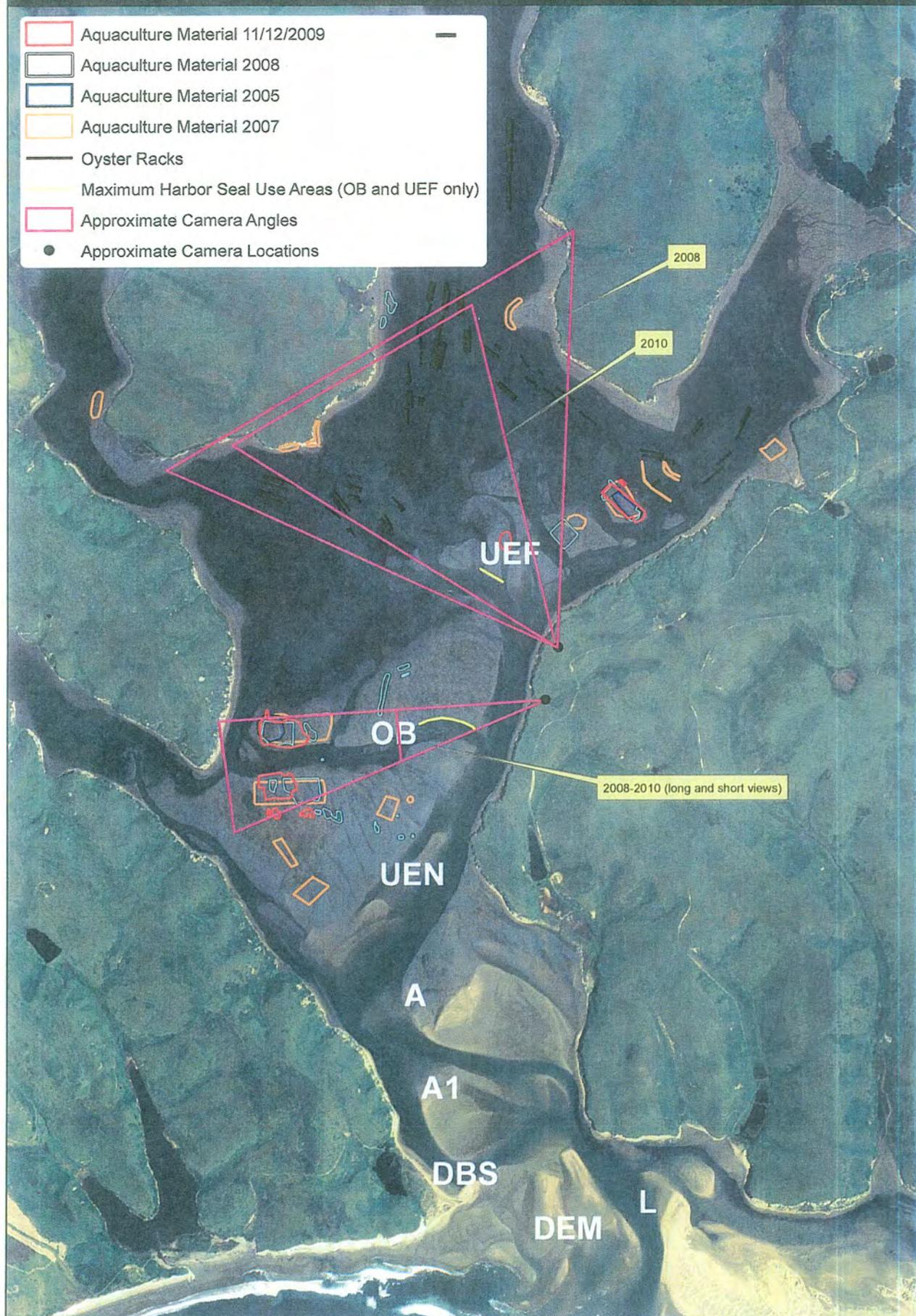
Sincerely,

Daryl J. Boness  
Editor  
Marine Mammal Science

# Drake's Estero Camera Angles



- Aquaculture Material 11/12/2009
- Aquaculture Material 2008
- Aquaculture Material 2005
- Aquaculture Material 2007
- Oyster Racks
- Maximum Harbor Seal Use Areas (OB and UEF only)
- Approximate Camera Angles
- Approximate Camera Locations



0 250 500 1,000 1,500 2,000 Meters

2010-05-07 3:05:00 PM T

0 80°F

RECONYA

2009-06-25 10:36:00 AM T

0 66°F

RECOMA

2008-04-13 12:02:00 PM T 96°F



RECONYA

2008-05-27 12:00:12 PM 75°F



WWW.RECONYX.COM



Dave Press/GOGA/NPS  
06/16/2010 04:58 PM

To Cicely Muldoon/OAKLAND/NPS@NPS  
cc  
bcc  
Subject camera samples

History:  This message has been forwarded.

Here are four sample photos. Two are facing OB, with one taken in 2008 and one taken in 2009. The 2008 image has a kayak which flushed seals from the sandbar. The other two face UEF, with one taken in 2008 and one taken in 2010.

Hope this is what you need.

Dave



IMG\_2193.JPG



IMG\_0003.JPG



IMG\_0037.JPG



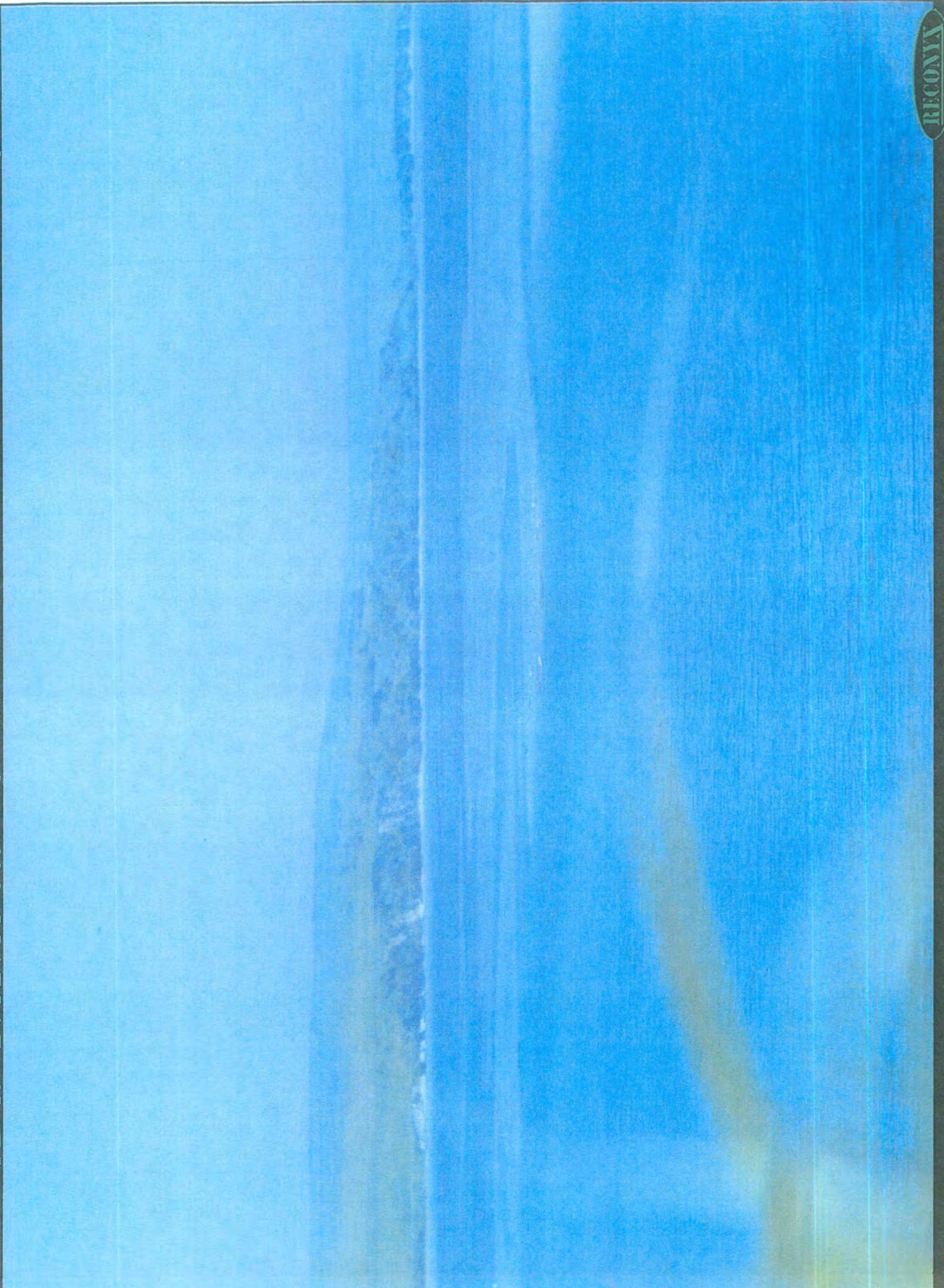
T0004101.JPG

---

David Press  
Ecologist / Data Manager  
San Francisco Area Network  
Inventory and Monitoring Program  
415-331-0168  
415-331-5530 (FAX)

2010-05-07 3:05:00 PM T 0 80°F

RECONYA



2009-06-25 10:36:00 AM T

0 66°F

RECOMA

2008-04-13 12:02:00 PM T

96°F

RECONIA



2008-09-27 12:00:12 PM 76°F



WWW.RECONYX.COM



Dave Press/GOGA/NPS  
06/16/2010 04:58 PM

To Cicely Muldoon/OAKLAND/NPS@NPS  
cc  
bcc  
Subject camera samples

History:  This message has been forwarded.

Here are four sample photos. Two are facing OB, with one taken in 2008 and one taken in 2009. The 2008 image has a kayak which flushed seals from the sandbar. The other two face UEF, with one taken in 2008 and one taken in 2010.

Hope this is what you need.

Dave

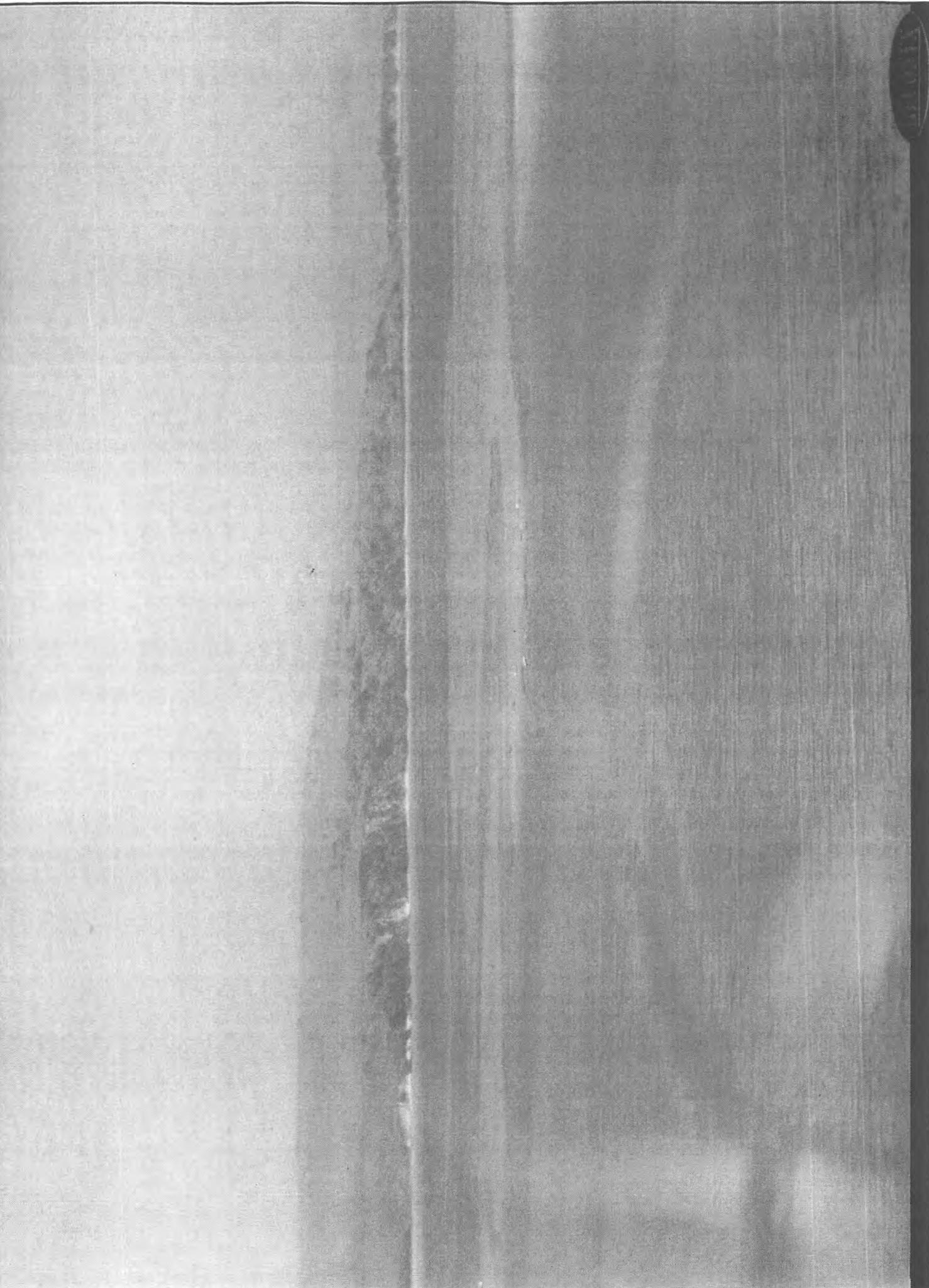


IMG\_2193.JPG IMG\_0003.JPG IMG\_0037.JPG T0004101.JPG

---

David Press  
Ecologist / Data Manager  
San Francisco Area Network  
Inventory and Monitoring Program  
415-331-0168  
415-331-5530 (FAX)

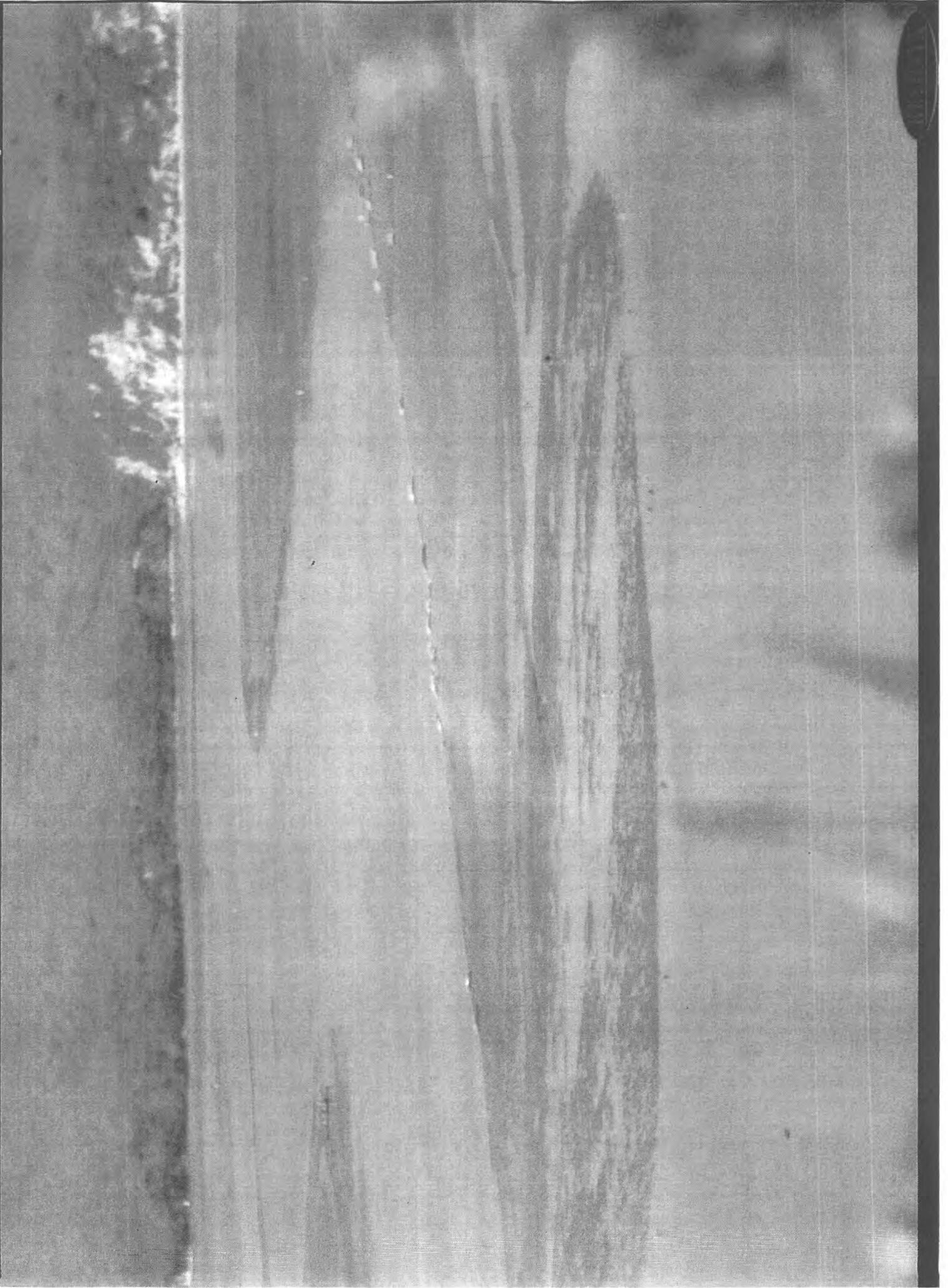
2010-05-07 3:05:00 PM T 80°F



2009-06-25 10:36:00 AM T 66°F



2008-04-13 12:02:00 PM T 96°F



2008-05-27 12:00:12 PM 76°F



WWW.RECONYX.COM



Cicely Muldoon  
06/14/2010 10:50 PDT

To: David Graber/SEKI/NPS@NPS  
cc: "Ben Becker" <Ben\_Becker@nps.gov>, "Dave Press" <Dave\_Press@nps.gov>, George Turnbull/OAKLAND/NPS, Sarah Allen/PORE/NPS@NPS, Gordon White/PORE/NPS, John A  
Subject: Re: Fw: the May 1, 2009 Briefing Statement "Response to Goodman's January 18, 2009 Letter to NRC"

He sent the same message, essentially, to us. Let's keep to one point of contact for clarity, and funnel all responses back through me -let's talk about this at today's 3 pm call (which you might not be able to make Dave...foxes sound more fun...), and we'll respond from here. thx

C



**Cicely Muldoon, Superintendent**  
**POINT REYES NATIONAL SEASHORE**

1 Bear Valley Road  
Point Reyes Station, CA 94956  
phone (415) 464-5101  
cicely\_muldoon@nps.gov

*Commitment to mission is commitment to each other*



David Graber/SEKI/NPS



David Graber/SEKI/NPS  
06/14/2010 10:41 AM

To "Cicely Muldoon" <Cicely\_Muldoon@nps.gov>, George Turnbull/OAKLAND/NPS  
cc "Ben Becker" <Ben\_Becker@nps.gov>, "Dave Press" <Dave\_Press@nps.gov>, Sarah Allen/PORE/NPS  
Subject Fw: the May 1, 2009 Briefing Statement "Response to Goodman's January 18, 2009 Letter to NRC"

Ex 5 [redacted] Whoever wrote the briefing statement--and it's quite well written and cogent--to me is irrelevant. It's an NPS response Ex 5 [redacted] Or perhaps Ex 5 [redacted] You may wish to advise how I respond ...or don't respond. Ex 5 [redacted]  
Ex 5 [redacted]

Sent from my BlackBerry  
David Graber  
Chief Scientist  
Pacific West Region  
National Park Service  
559.565.3173 Sequoia  
559.679.5999 Mobile

----- Original Message -----

From: Corey Goodman [corey.goodman@nps.gov] Ex 6 [redacted]  
Sent: 06/13/2010 08:21 PM MST  
To: David Graber  
Cc: David Weiman <agresources@erols.com>; Kevin Lunny <kevinlunny@nps.gov> Ex 6 [redacted]  
Tim Ragen <tragen@mmc.gov>  
Subject: the May 1, 2009 Briefing Statement "Response to Goodman's January 18,

2009 Letter to NRC"

Dear Dave,

Thanks very much for attending the June 7 MMC meeting on disputed NPS harbor seal disturbance data attributed to DBOC.

At the meeting on Monday, when I brought up the May 1 2009 "Briefing Statement" document ("Response to Goodman's January 18, 2009 Letter to NRC"), David Press claimed that it had been made public last May because it had been given to both the National Academy of Sciences and to me on May 1 2009. Kevin has since checked with Dr. Susan Roberts at the NRC/NAS and she stated that the document was never given to the NAS. Moreover, the document was never given to Kevin or to me. When I asked the group who the authors were, everyone remained silent.

During a break, I took you aside and asked you who requested the document, who wrote it, and where it was sent. You said that you knew nothing about the document and had no idea who wrote it or where it was sent. You said that I should consider the authors the National Park Service.

Would you please tell me as soon as possible who requested the May 1 2009 Briefing Statement, who wrote it, who edited it, who took responsibility for it, and to whom it was submitted.

Thanks very much.

Corey

Corey Goodman, Ph.D.  
corey.goodman@Ex 6



David Graber  
06/14/2010 13:41 EDT

To: "Cicely Muldoon" <Cicely\_Muldoon@nps.gov>, George  
Turnbull/OAKLAND/NPS  
cc: "Ben Becker" <Ben\_Becker@nps.gov>, "Dave Press"  
<Dave\_Press@nps.gov>, Sarah Allen/PORE/NPS  
Subject: Fw: the May 1, 2009 Briefing Statement "Response to Goodman's  
January 18, 2009 Letter to NRC"

Ex 5 [REDACTED] Whoever wrote the briefing  
statement--and it's quite well written and cogent--to me is irrelevant. It's  
an NPS response Ex 5 [REDACTED]

Ex 5 [REDACTED] You may wish to advise how I respond ...or don't respond. Ex 5 [REDACTED]

Ex 5 [REDACTED]

Sent from my BlackBerry  
David Graber  
Chief Scientist  
Pacific West Region  
National Park Service  
559.565.3173 Sequoia  
559.679.5999 Mobile

----- Original Message -----

From: Corey Goodman [corey.goodman@nps.gov] Ex 6 [REDACTED]  
Sent: 06/13/2010 08:21 PM MST  
To: David Graber  
Cc: David Weiman <agresources@erols.com>; Kevin Lunny <kevin.lunny@nps.gov> Ex 6 [REDACTED]  
Tim Ragen <tragen@mmc.gov>  
Subject: the May 1, 2009 Briefing Statement "Response to Goodman's January 18,  
2009 Letter to NRC"

Dear Dave,

Thanks very much for attending the June 7 MMC meeting on disputed NPS  
harbor seal disturbance data attributed to DBOC.

At the meeting on Monday, when I brought up the May 1 2009 "Briefing  
Statement" document ("Response to Goodman's January 18, 2009 Letter to  
NRC"), David Press claimed that it had been made public last May  
because it had been given to both the National Academy of Sciences and  
to me on May 1 2009. Kevin has since checked with Dr. Susan Roberts  
at the NRC/NAS and she stated that the document was never given to the  
NAS. Moreover, the document was never given to Kevin or to me. When  
I asked the group who the authors were, everyone remained silent.

During a break, I took you aside and asked you who requested the  
document, who wrote it, and where it was sent. You said that you knew  
nothing about the document and had no idea who wrote it or where it  
was sent. You said that I should consider the authors the National  
Park Service.

Would you please tell me as soon as possible who requested the May 1  
2009 Briefing Statement, who wrote it, who edited it, who took  
responsibility for it, and to whom it was submitted.

Thanks very much.

Corey

Corey Goodman, Ph.D.  
corey.goodman

EX 6



David Graber/SEKI/NPS  
06/14/2010 10:45 AM

To Cicely Muldoon/OAKLAND/NPS@NPS  
cc  
bcc  
Subject Re: reply to your email concerning the oyster farm

Total lie. I don't know what Blum wrote, but I was very clear and repeated myself that the camera was there to observe seals and their behavior. Period.

Sent from my BlackBerry  
David Graber  
Chief Scientist  
Pacific West Region  
National Park Service  
559.565.3173 Sequoia  
559.679.5999 Mobile  
Cicely Muldoon

----- Original Message -----

From: Cicely Muldoon  
Sent: 06/13/2010 10:37 PM PDT  
To: David Graber  
Subject: Fw: reply to your email concerning the oyster farm



**Cicely Muldoon, Superintendent**  
POINT REYES NATIONAL SEASHORE

1 Bear Valley Road  
Point Reyes Station, CA 94956  
phone (415) 464-5101  
cicely\_muldoon@nps.gov



*Commitment to mission is commitment to each other*

----- Forwarded by Cicely Muldoon/OAKLAND/NPS on 06/13/2010 10:36 PM -----



Corey Goodman  
<corey.goodman@Ex 6>  
06/13/2010 09:48 PM

To Cicely Muldoon <Cicely\_Muldoon@nps.gov>  
cc Tim Ragen <tragen@mmc.gov>, David Weiman  
<agresources@erols.com>, Kevin Lunny  
<kevin@Ex 6>  
Subject reply to your email concerning the oyster farm

Hi Cicely,

Thanks for your note of June 9. Sorry for the delay in responding, but I've been traveling for work and am writing this from out of town.

I regret that you found the tone of my email divisive. That was not my intent. It is obvious we share a strong desire to resolve this very difficult situation at the Seashore. I seek to be as honest and transparent with you as I can, and unfortunately, emails have a tendency to feel less conversational and more harsh than face-to-face conversations. So I again request that you and I sit down together soon over coffee to discuss face-to-face both the history of this issue as I have experienced it, and our perspectives on what has happened. I truly believe that with we can only move forward by talking to each other openly, honestly, and frequently - and that in doing that, we can chart a path for a shared future.

Until we are able to meet, please allow me to explain the source of my frustration regarding our meeting last Monday June 7. What we discovered in the twenty-four hours leading up to that meeting was not encouraging. Moreover, the answers given by your employees and colleagues to my questions on Monday (even preventing me at times from finishing my comments), and what they told the local media in the following days, is also not very encouraging. By suggesting that you "clear the air," as I did at the end of my previous email, I am trying to suggest what I believe is the only path forward -- one based on trust and truth. As the new Superintendent, you are in a unique position to change the way the Seashore reacts to difficult questions and errors once they are found. This is your opportunity to seize the moment.

Cicely, I confess that I am feel an even greater loss of trust in the Park now, given the recent discoveries about undisclosed cameras, secret documents, and errors in the database. I do not know how we can move past these discoveries if we cannot discuss them openly and fully, and if we continue to experience such serious breaches of trust. Please, lets sit down together, get to know where the other is coming from, and start to lay the groundwork for getting through issues like this in a better way than we have in the past.

After our meeting on Monday, Dave Graber said to Andrea Blum (reporter for the West Marin Citizen) that one purpose of the camera was to catch oyster farm disturbances, and that there was no reason for NPS to tell Lunny about its existence. Do you agree with his statement? Is this your PRNS policy that hidden cameras aimed at ranchers or farmers are acceptable? How do you feel that your employees never mentioned at our meeting on Monday that there were two -- and not one -- cameras aimed at that region? Finally, how do you feel about their unwillingness to tell me who wrote the May 1 2009 document, or where it was sent? Is this the path forward? Is this trust and truth?

If Kevin Lunny and I seem a little concerned on Monday, it is because we learned these things within the 24 hours prior to our meeting. It was only on Sunday morning at 10 am -- less than 24 hours before our meeting -- that I read for the first time the May 1, 2009 "Briefing Statement". I was surprised by what I read.

First, in that secret document (the May 1, 2009 "Briefing Statement", never given to me), I discovered many false and misleading statements made by PRNS employees in this secret document aimed at discrediting my assertions in response to my January 18 2009 public document on disturbance events given to the National Academy of Sciences (and the NPS; NAS ultimately sent my document to DOI Secretary Salazar in February and said it was his responsibility and not NAS's to investigate a claim of scientific misconduct). For example, you heard me cite one of those false claims on Monday -- a claim that David Press and David Graber immediately said they did not make, even though it is in the document as clear as can be -- namely, that even if Lunny's payroll records of employee time clock records show that workers were not working at the time of a disturbance, they might still have been out fishing after hours. I asked your colleagues whether they really thought that Lunny's workers were fishing in shallow water (six inches) with dense eelgrass and throwing out or hauling in oyster bags after hours for free? That is what NPS officials told the Inspector General several years ago. That is what NPS scientists wrote in the May 1, 2009 document. Your colleagues denied making such a claim. Please look at the "Briefing Statement" and the IG report.

Second, I discovered, at the bottom of the second page of Appendix A, the existence, at least in 2008, of a remote camera photographing the oyster beds and lateral channel every minute from 7 am to 7 pm. I immediately called Kevin that morning and confirmed that he did not know about the secret camera. Last Monday we learned that the camera has been photographing Kevin's oyster bags and boats every minute from 7 am to 7 pm for the past 2 1/2 years. Only a few days later did we learn that there are indeed two cameras in that vicinity.

When I asked your scientists about the May 1 2009 document on Monday, David Press held it up

and said that it was made public on May 1 2009. I asked to whom it was sent. He said it was submitted to the National Academy of Sciences and given to me. Kevin has since confirmed with Dr. Susan Roberts at NRC/NAS that the document was never submitted to the NAS. After all, their final report was issued just a few days later. Moreover, I asked David Press who wrote it, and he refused to answer. Neither Ben nor Sarah answered either. Everyone remained silent. Who are the authors? Who revised it? Who took charge? And who asked them to write this 33 page document aimed at rebutting my document? And to whom was it given? No one would answer. I took Dave Graber aside during one of our breaks and asked him the same questions. He claimed to have no knowledge of the document, did not know who wrote it, and did not know where it was distributed. Graber suggested I should ask you, which is what I did, and you said you would get me the information.

I asked you on Monday if you would find the answers to these questions about the secret document, and you said you would. I then followed up by email to you and asked again. You called my email divisive, but you did not commit to find out the requester, authors, and audience for this document. Would you please commit to finding out these answers as soon as possible? This will help clear the air.

In addition, when I brought up the camera, no one answered that there were indeed two cameras. Moreover, Sarah claimed that this camera was aimed at wildlife. As I said to you on Monday, if you and I wanted to maximize the view of harbor seals, we could find a half dozen better locations to place and aim the camera. Kevin and I have carefully examined the handful photos we have been given thus far, and, as pointed out in the map he sent you, the camera was not aimed at maximizing photos of harbor seals, but rather was aimed at maximizing the view of Kevin's oyster bags and boats in the lateral channel. Some of the photos do not even include any harbor seal haul-out sites at the lip of the deep main channel, but rather are focused on the lateral channel and oyster bags.

When the Marine Mammal Commission went out to the observation spot (on the west side of Drakes Estero) on Monday February 22 with both NPS officials and local media, at least three different people at that meeting remember (and have independently told me about) one of the MMC panel members pointing across to the east side of Drakes Estero and saying that the NPS should either have volunteers or a camera in that location because it would present a better view of the oyster bags and boats. NPS officials remained silent. We now know that the MMC panel member was pointing to precisely the location of the two cameras. Why wasn't the MMC panel told? Why wasn't the NAS panel told two years earlier? Why were we given this dubious answer on Monday that the camera is pointed at the seals when that is not its major or maximized view?

Cicely -- you say I am being divisive. To the contrary, I am trying to get answers to a troubling document and hidden camera that Kevin and I learned about less than 24 hours before our meeting. How can we trust the future when these sorts of things have been going on over the past year?

Let me repeat what I wrote to you last week. I have heard terrific things about you from lots of

people that I trust and admire. I want to work with you to move forward. You have inherited a messy situation. It was created by the past Superintendent. My advice: don't take ownership of a bad situation by allowing NPS employees to give false answers or hide the truth. You have the opportunity to clear the air -- by telling us that you will investigate the cameras, that you will share all of the photos, and that under your watch, ranchers and farmers will not be secretly photographed. Moreover, you have the opportunity to clear the air -- by behaving totally differently from the previous PRNS administration, by telling us who requested the May 1 2009 document, who wrote it, who revised it, and who submitted it and to where in the government or elsewhere it was sent.

Taking these actions would be a sign of great leadership and would go a long way to ending the divisive history and pointing to a collaborative future based on trust and truth. I am prepared to work with you. As a first step, why don't we get together soon.

Best wishes,

Corey

On Jun 9, 2010, at 1:38 PM, [cicely\\_muldoon@nps.gov](mailto:cicely_muldoon@nps.gov) wrote:

Hi Corey -

Thanks for the note. I thought it was a positive and productive meeting on Monday, and was glad to have a chance to hear the discussion and reach resolution on how to address each data point. Dave and Sarah have already been faster than I at getting back in touch, and I know that Dave is burning the images you request onto a CD this afternoon, and that Sarah is attempting to reach the volunteer who made reference to digital images on the data sheet. I will see what I can find out about last year's briefing paper and get back in touch.

You talked at the Monday meeting about how divisive this issue has been in the community. I agree, and believe we all have a real opportunity to change the tone of the discussion, acknowledging where we disagree, and doing so without rancor or malice. I confess the tenor of your message concerns me, as it seems to perpetuate the divisive tone that we are all committed to moving beyond. I look forward to discussing this further with you.

Thanks,

Cicely

(Embedded image moved to file: pic28318.gif)

Corey Goodman  
<corey@Ex 6>  
Ex 6

To  
Cicely Muldoon  
06/08/2010 02:08 PM <Cicely\_Muldoon@nps.gov>  
cc  
Kevin Lunny  
<kevin@Ex 6> David  
Weiman <agresources@erols.com>  
Subject  
thank you and request

Dear Cicely,

It was a pleasure meeting you yesterday. I had heard great things about you from a number of people that I greatly trust and respect, and so I have great hopes for your tenure at PRNS to help heal the wounds in our community caused by your predecessor, and to find the right balance between the Seashore, the Park visitors, and the agricultural use of some of the lands. I look forward to working with you and supporting you at the Seashore in this endeavor.

Thanks also for attending the meeting yesterday. At some point soon, I would like to get together with you privately to give you some historical perspective on the Drakes Estero issue -- and the misuse of science -- so that you better understand what I discovered, why I did so, and what I have learned over the past four years. I worry that you are hearing only one side, and that side is biased. It would be healthy for you to hear a perspective that doesn't come from Dave Graber and others within the NPS. It would be valuable for you to get out of the NPS and hear the story from my perspective, as a National Academy of Sciences member and local resident who became involved at the request of Supervisor Steve Kinsey. Most of what I have said has been validated by the National Academy of Sciences panel, the Inspector General, and the Marine Mammal Commission.

As I mentioned to you yesterday when we talked after the meeting, I have four specific requests.

First, concerning the May 1, 2009 "Briefing Statement - National Park Service Response to Goodman's January 18, 2009 Letter to NRC", would you please find out and tell me (i) who requested this document (i.e., why it was written), (ii) who wrote it (all of the authors please), and (iii) to whom it was sent and distributed. Naturally, I was surprised recently to discover this document, over one year after it was written and distributed. It contains many misleading statements, misrepresentations, and false arguments, all aimed at blunting a document I had given to the NRC and of course provided to the NPS. I hope that, in the future under your administration, documents coming from the PRNS will be authored, will be distributed to the relevant parties, and that if they attack the work of an individual, they will not be kept secret from that individual but rather will be shared to allow a fair critique. It should make you wonder why the folks who created this document didn't want me to see it. At a later date, I will share my critique of it with you.

Second, concerning the secret camera that has been focused on the lateral channel and Lunny's oyster beds for the past 2 1/2 years (without ever telling Lunny or the public), would you please immediately send to me the digital photos (at full resolution) from 12 noon to 1:15 pm on March 14, 2008, and the digital photos from March 23, 2008 (as cited in the "Briefing Statement") for a one hour period including 30 minutes before and after the claimed images of a DBOC boat present on Drakes Estero. Please don't be surprised if in the near-term I submit a FOIA request for access to all of the photos, but for the moment, these two dates are key. Thanks for getting these photos from the two key dates for me now.

Third, would you please send me the couple of digital photos that in the December 10, 2008 disturbance report, Sue Van Der Wal says she gave to Sarah Allen.

Fourth, I have some advice and a request concerning the secret camera photographing Lunny's oyster beds and oyster workers at UEN and OB and the lateral channel for the past 2 1/2 years. As I told you yesterday, this is very provocative to our community. You said that you thought that this camera was simply being used for wildlife photographs. The timing after the Neubacher assertions in 2007 and controversy, the positioning of the camera pointing right at Lunny's operation, and the location of the camera hidden in thorns and vines, suggests that it was set up to optimize the observation of homo sapiens and not harbor seals. PRNS officials and scientists have had many opportunities to reveal the existence of this camera and the digital photographs, and they have never done so. The community is likely to respond very poorly to this revelation. I encourage

you to make a strong statement to the community assuring them that under your administration, you will never use any photographic or listening device to spy on any of the ranchers or farmers within the Seashore. If you simply say that this camera is aimed at wildlife, you will regret such a statement as the photographs themselves, and their use in the May 1, 2009 "Briefing Statement", reveal the true intent -- the focus is on the lateral channel and the oyster beds, and is not optimized to get as many harbor seal haul-out sites as possible. I would recommend that you say that the hidden nature of this camera disturbs you -- as is the fact that Lunny was never told -- and that you will investigate its purpose and history, and that you will assure the agricultural community that you will not allow spying on ranchers and farmers.

Best wishes,

Corey

Dr. Corey S. Goodman

Ex 6

A large black rectangular redaction box covers the text below the signature.



Corey Goodman  
<corey.goodman@Ex 6>  
06/09/2010 02:32 PM

To Dave\_Press@nps.gov  
cc David Weiman <agresources@erols.com>, Cicely Muldoon  
<Cicely\_Muldoon@nps.gov>, Kevin Lunny  
<kevin@Ex 6> Tim Ragen  
bcc

Subject Re: photographs

Thanks,  
Corey

On Jun 9, 2010, at 2:31 PM, Dave\_Press@nps.gov wrote:

> FYI - the images went out with today's mail.  
>  
> Dave

>  
> \_\_\_\_\_  
> David Press  
> Ecologist / Data Manager  
> San Francisco Area Network  
> Inventory and Monitoring Program  
> 415-331-0168  
> 415-331-5530 (FAX)

>  
>  
> |-----|  
> | Corey Goodman |  
> | <corey.goodman@Ex 6> |  
> | Ex 6 |  
> | 06/09/2010 12:55 |  
PM MST
>>

-----|

>  
> |  
> |  
> | To:  
> Dave\_Press  
> @nps  
> .gov  
> |  
> | cc: David Weiman <agresources@erols.com>, Cicely  
> Muldoon <Cicely\_Muldoon@nps.gov>, Kevin Lunny  
> | <kevin@Ex 6> Tim Ragen  
> |  
> | <tragen@mmc.gov>  
> | Subject: Re:  
> | photographs  
> |  
>>

> |  
>> | Subject:  
>> photographs

>>  
> |  
>>>  
>

---

>  
>>  
>>  
>>  
>>

>> David,  
>>  
>> This is a reminder and request to please send us the following  
>> digital  
>> photographs from the camera focused on the UEN and OB oyster beds and  
>> lateral channel. After the close of our meeting on Monday, and after  
>> most folks had already left, you came back with a single B&W print of  
>> one photo from March 14, 2008 and said you had now looked through the  
>> series of photos with a boat in the lateral channel. You said you  
>> would email these photos to the attendants of the meeting, since  
>> these  
>> are the photos that I had requested in the morning. Please send us  
>> ASAP by email the full set of photos containing any sign of the boat  
>> from 12 noon to 1:15 pm on March 14, 2008.

>>  
>> Second, in the "Briefing Statement" document of May 1, 2009, you  
>> write  
>> that you have photos of a DBOC boat on Drakes Estero on Sunday March  
>> 23, 2008. Please send that entire series as well, including the full  
>> range of photos showing that boat.

>>  
>> Please send all of these photos at the full resolution that you have.  
>> I believe that is 3.1 megapixels.

>>  
>> Thanks very much. If you want to send the photos on a DVD, my  
>> address  
>> is: Ex 6 [REDACTED] Hopefully you can send them by  
>> multiple emails. You need only send them to me on our side of the  
>> table and I will distribute to Kevin and Dave.

>>  
>> Thanks again,  
>>  
>> Corey

>>  
>>  
>>  
>>  
>>  
>>  
>  
>  
>



Corey Goodman  
<corey.goodman@Ex 6>  
06/09/2010 06:37 AM

To David Press <dave\_press@nps.gov>  
cc Kevin Lunny <kevin@Ex 6> David Weiman  
<agresources@erols.com>, Tim Ragen <tragen@mmc.gov>,  
Cicely Muldoon <Cicely\_Muldoon@nps.gov>  
bcc

Subject photographs

David,

This is a reminder and request to please send us the following digital photographs from the camera focused on the UEN and OB oyster beds and lateral channel. After the close of our meeting on Monday, and after most folks had already left, you came back with a single B&W print of one photo from March 14, 2008 and said you had now looked through the series of photos with a boat in the lateral channel. You said you would email these photos to the attendants of the meeting, since these are the photos that I had requested in the morning. Please send us ASAP by email the full set of photos containing any sign of the boat from 12 noon to 1:15 pm on March 14, 2008.

Second, in the "Briefing Statement" document of May 1, 2009, you write that you have photos of a DBOC boat on Drakes Estero on Sunday March 23, 2008. Please send that entire series as well, including the full range of photos showing that boat.

Please send all of these photos at the full resolution that you have. I believe that is 3.1 megapixels.

Thanks very much. If you want to send the photos on a DVD, my address is: Ex 6. Hopefully you can send them by multiple emails. You need only send them to me on our side of the table and I will distribute to Kevin and Dave.

Thanks again,

Corey



Corey Goodman  
<corey.goodman@Ex 6>  
06/08/2010 02:08 PM

To Cicely Muldoon <Cicely\_Muldoon@nps.gov>  
cc Kevin Lunny <kevin@Ex 6> David Weiman  
<agresources@erols.com>  
bcc

Subject thank you and request

History: This message has been replied to and forwarded.

Dear Cicely,

It was a pleasure meeting you yesterday. I had heard great things about you from a number of people that I greatly trust and respect, and so I have great hopes for your tenure at PRNS to help heal the wounds in our community caused by your predecessor, and to find the right balance between the Seashore, the Park visitors, and the agricultural use of some of the lands. I look forward to working with you and supporting you at the Seashore in this endeavor.

Thanks also for attending the meeting yesterday. At some point soon, I would like to get together with you privately to give you some historical perspective on the Drakes Estero issue -- and the misuse of science -- so that you better understand what I discovered, why I did so, and what I have learned over the past four years. I worry that you are hearing only one side, and that side is biased. It would be healthy for you to hear a perspective that doesn't come from Dave Graber and others within the NPS. It would be valuable for you to get out of the NPS and hear the story from my perspective, as a National Academy of Sciences member and local resident who became involved at the request of Supervisor Steve Kinsey. Most of what I have said has been validated by the National Academy of Sciences panel, the Inspector General, and the Marine Mammal Commission.

As I mentioned to you yesterday when we talked after the meeting, I have four specific requests.

First, concerning the May 1, 2009 "Briefing Statement - National Park Service Response to Goodman's January 18, 2009 Letter to NRC", would you please find out and tell me (i) who requested this document (i.e., why it was written), (ii) who wrote it (all of the authors please), and (iii) to whom it was sent and distributed. Naturally, I was surprised recently to discover this document, over one year after it was written and distributed. It contains many misleading statements, misrepresentations, and false arguments, all aimed at blunting a document I had given to the NRC and of course provided to the NPS. I hope that, in the future under your administration, documents coming from the PRNS will be authored, will be distributed to the relevant parties, and that if they attack the work of an individual, they will not be kept secret from that individual but rather will be shared to allow a fair critique. It should make you wonder why the folks who created this document didn't want me to see it. At a later date, I will share my critique of it with you.

Second, concerning the secret camera that has been focused on the lateral channel and Lunny's oyster beds for the past 2 1/2 years (without ever telling Lunny or the public), would you please immediately send to me the digital photos (at full resolution) from 12 noon to 1:15 pm on March 14, 2008, and the digital photos from March 23, 2008 (as cited in the "Briefing Statement") for a one hour period including 30 minutes before and after the claimed images of a DBOC boat present on Drakes Estero. Please don't be surprised if in the near-term I submit a FOIA request for access to all of the photos, but for the moment, these two dates are key. Thanks for getting these photos from the two key dates for me now.

Third, would you please send me the couple of digital photos that in the December 10, 2008 disturbance report, Sue Van Der Wal says she gave to Sarah Allen.

Fourth, I have some advice and a request concerning the secret camera photographing Lunny's oyster beds and oyster workers at UEN and OB and the lateral channel for the past 2 1/2 years. As I told you yesterday, this is very provocative to our community. You said that you thought that this camera was simply being used for wildlife photographs. The timing after the Neubacher assertions in 2007 and controversy, the positioning of the camera pointing right at Lunny's operation, and the location of the camera hidden in thorns and vines, suggests that it was set up to optimize the observation of homo sapiens and not harbor seals. PRNS officials and scientists have had many opportunities to reveal the existence of this camera and the digital photographs, and they have never done so. The community is likely to respond very poorly to this revelation. I encourage you to make a strong statement to the community assuring them that under your administration, you will never use any photographic or listening device to spy on any of the ranchers or farmers within the Seashore. If you simply say that this camera is aimed at wildlife, you will regret such a statement as the photographs themselves, and their use in the May 1, 2009 "Briefing Statement", reveal the true intent -- the focus is on the lateral channel and the oyster beds, and is not optimized to get as many harbor seal haul-out sites as possible. I would recommend that you say that the hidden nature of this camera disturbs you -- as is the fact that Lunny was never told -- and that you will investigate its purpose and history, and that you will assure the agricultural community that you will not allow spying on ranchers and farmers.

Best wishes,

Corey

Dr. Corey S. Goodman

Ex 6





Sarah Allen/PORE/NPS  
05/01/2009 05:04 PM

To David Graber/SEKI/NPS@NPS  
cc "Ben Becker" <Ben\_Becker@nps.gov>  
bcc  
Subject Re: Draft final response to Goodman letter to NRC 

No edits are needed unless you see something that MUST be changed. Thi is just reference for you.

Sarah

How is the mother doing?

---

Sarah G. Allen, Ph.D.  
Senior Science Advisor  
National Park Service  
Point Reyes National Seashore  
One Bear Valley Road  
Point Reyes Station, CA 94956  
Phone 415-464-5187  
Fax 415-464-5182  
sarah\_allen@nps.gov

><(((<sup>o</sup>)>...><(((<sup>o</sup>)>...



**Briefing Statement - National Park Service Response to  
Goodman's January 18, 2009 Letter to NRC  
May 1, 2009**

This briefing statement addresses allegations and criticisms put forth in a January 18, 2009 letter from Dr. Goodman to the National Research Council (NRC). There are additional documents in support of this rebuttal. Dr. Goodman has made several accusations that fall into three categories: falsified data, manipulated and withheld information, and not following NPS protocols. His accusations are based on a number of assumptions, little data and faulty analyses. Here, we refute the accusations with sound data and scientific analyses.

**Allegations of falsified data**

The allegation of falsified data on April 29, 2007 is based on several incorrect assumptions. Dr. Goodman assumes that the seals do not use the site when sandbars are submerged and that seals are not disturbed by sources > 300 ft away. This is no supporting evidence for these allegations.

- Seals regularly hover over and rest on sandbars in Drakes Estero and elsewhere before the sandbars are exposed by falling tides. Also, disturbances of seals documented by NPS were recorded during the *breeding* season when females and pups are commonly on the sandbars. Dr. Goodman used incomplete tidal data for his analyses and analyzed tidal effects during January when seals are less common at the site.
- Dr. Goodman implies that seals could not be disturbed at distances greater than 300 ft. The National Marine Fisheries Service recommends generally a distance of 300 ft for not disturbing marine mammals; however, the published literature is replete with information on harbor seals disturbed at greater distances.

**Allegations of manipulated and withheld data**

The record of Dr. Becker's communications to the NRC and the editor of the Journal of Marine Mammal Science (MMS) demonstrates clearly that NPS did not manipulate data or mislead either the NRC (in his presentation to the NAS panel in September 2008 and in the final published paper in MMS which he shared with them) or the editor of MMS (in correspondence back and forth in final preparation of the paper). In the process of revising the paper, Dr. Becker found additional disturbances in the database that were missed during the first version of the paper but those omissions were rectified and fully explained to both the NRC and the MMS editor.

**Allegations of NPS failing to follow protocols and QA/QC**

Dr. Goodman challenged the validity of the survey on April 29, 2007 because he states that it did not meet the protocol criteria of the pinniped monitoring program based on tide height and the experience of the volunteers. The MMS paper clearly states that *count* data were filtered for date, observer experience, tide and weather. However, *disturbance* data are not subject to these criteria. Disturbances can be recorded at any tide, weather, or observer experience level. First year observers, all of who must attend trainings, have the ability to observe, for example, a motorboat flushing harbor seals off a sandbar. Furthermore, it is irrelevant whether a disturbance occurs in poor weather conditions or at a high or low tide. Nevertheless, the volunteers in question had at least one previous year of experience which Dr. Goodman did not recognize from the pinniped database, and their count data met the protocol for tide level.

We note that in previous letters from Dr. Goodman that he criticized the NPS statistical modeling techniques. His critiques were closely examined by editors and peer reviewers at MMS and were flatly rejected. He now primarily focuses on data handling and alleges NPS falsified data that were independently collected by several different volunteers and NPS staff. We find Dr. Goodman's statements misguided as evidenced by the conclusions of both the editors of MMS and the DOI Inspector General that there was no evidence of scientific misconduct. Separately, the NRC refused to consider his allegations of scientific misconduct.

**National Park Service Response to  
Goodman's January 18, 2009 Letter to NRC  
May 1, 2009**

This document addresses the allegations and criticisms put forth in a January 18, 2009 letter from Dr. Goodman to the National Research Council (NRC). We are not addressing all of the allegations in the letter because many of them were presented in earlier letters of Dr. Goodman that we previously rebutted. Because Dr. Goodman's letter addresses many themes and frequently revisits them in a non-linear fashion, we have reorganized what we believe are the salient points and address them in turn below. Several of the short responses below are supported by additional referenced documents that are attached in appendices.

**1. Allegation that NPS falsified data on harbor seal disturbance events.**

Dr. Goodman states on page 2 and on numerous other pages in his letter to the NRC that

*"Simply said, NPS presented you with false science. It is physically impossible for the disturbance events to have taken place as described..."*

The allegation of falsified data on April 29, 2007 is based on several incorrect assumptions. Dr. Goodman assumes that the seals do not use the site when the sandbars are submerged, that seals are not disturbed by sources > 300 ft away, that DBOC generally does not operate on Sundays, and that several volunteers and NPS staff separately fabricated disturbance data on several days of field observations. There is no supporting evidence for these allegations and we refute them with actual data.

- Assumption that seals do not use submerged sandbars (Goodman Letter, pages 7-12) Seals (especially mothers with pups) regularly hover over and rest on sandbars in Drakes Estero before they are exposed by falling tides, and this is a common behavior of harbor seals elsewhere. NPS has time stamped images of seals on the sandbars at similar falling tides during the 2008 *breeding* season in Drakes Estero. Furthermore, the disturbances documented by NPS were recorded during the breeding season when females and pups are commonly on these sandbars. Seals use these sandbars less frequently during January, the time of the "experiment" that Goodman cited in his letter. See **Appendix A** regarding tidal comparisons.
- Assumption that seals are not disturbed beyond the 300 foot Protective Zone (Goodman Letter, page 6) Dr. Goodman states that DBOC agreed to a 300 foot protective zone, and therefore, implies that seals could not be disturbed at distances greater than 300 ft. The National Marine Fisheries Service recommends a distance of 300 ft (100m) for not disturbing marine mammals; however, there is ample information in the published literature that documents harbor seals being disturbed at greater distances. Johnson and Gutierrez (2007) document power boats disturbing harbor seals in Washington at an average distance of 625 ft

(190.5 m) and as far as 1217 ft (371 m). Suryan and Harvey (1999) in another study in Washington document that 25% of disturbances to harbor seals occurred at a distance of 656-984 ft (200-300 m). Aircraft at high altitude also disturb harbor seals depending upon the amount of noise generated by the aircraft. It is not unreasonable that harbor seals in Drakes Estero were disturbed by boat noise generated at distances greater than 300 ft.

- Assumption that DBOC does not operate on Sundays (Goodman Letter, page 5)  
The April 29, 2007 disturbances occurred on a Sunday, however, Dr. Goodman states that DBOC does not normally operate on Sundays. We do not know at what frequency that DBOC boats operate on weekends; however, the DOI OIG investigation reports from an interview with the Chief Ranger of Point Reyes National Seashore that “Smith said that it was not uncommon for DBOC employees to take boats out into the estero after hours to fish.” (see page 26 of the DOI-OIG report July 2008). The NPS harbor seal monitoring database also reports DBOC activity in Drakes Estero on Sunday, May 11, 2007. In addition, NPS has time stamped images of a DBOC boat present on Drakes Estero on March 23, 2008, also a Sunday.
- Assumption of improbability of disturbances (Goodman Letter, pages 6-7) Dr. Goodman discounts the two April 29 disturbance events partly because they occurred so close together (50 minutes) that the boat would not have had enough time to return to the dock, pick up more bags, and then travel back to sandbar UEN. In fact, the volunteers never stated in their field notes that the boat returned to the dock and then came back between the disturbance events. There is no basis for Dr. Goodman to have assumed this, and subsequently discounting the events as logistically impossible is unclear. Possibly, the boat staged its operations from a barge moored within Drakes Estero, which is a common practice.
- Assumption that there are no other DBOC disturbance records (Goodman Letter, page 5) Dr. Goodman incorrectly states that as of April 29, 2007 there were no data documenting disturbances to harbor seals by DBOC. In fact, the database contains unambiguous records from April 26, 2007 documenting disturbances at multiple sites. An additional disturbance occurred the previous year on May 6, 2006.
- Assumption that the count occurred on April 29 at 3:15 PM (Goodman Letter, page 7) Dr. Goodman used a different time at which the volunteers conducted their full count of Drakes Estero from what is in the pinniped database. The database and datasheet clearly document that the data were collected at 2:15 PM. However, apparently based on a note on the photocopied datasheet Dr. Goodman assumes that the data were collected at 3:15 PM in his letter.

*“Based upon the tide chart with appropriate lag correction, it would have been difficult if not impossible for them to count seals on UEN and OB until 15:15. If*

*the tide was too high and they couldn't count the seals on UEN or OB until 15:15, then how could they record a disturbance at 12:50?"*

The field data sheet from the survey on April 29, 2007 reads, "poor tide – counted when could – had to leave at 3:15." Dr. Goodman mistakenly concluded that the volunteers could not count the harbor seals until 3:15 PM, which incorrectly supported his claims that earlier disturbances could not have occurred.

## **2. Allegation that 2003 disturbance data were covertly manipulated among versions of the MMS paper:**

Dr. Goodman states on page 16 in his letter to the NRC that:

*"The 2003 disturbance data changed from Becker I to Becker II with no comment about why these data were missed in Becker I or how they were found for Becker II."*

During preparation for the first Marine Mammal Science (MMS) journal submission, Becker inadvertently overlooked the 2003 disturbances. The datum (one disturbance) was in the dataset that D. Press, the NPS data manager, provided to Becker preparing the first MMS manuscript. While preparing for the NRC presentation on September 4, 2008, Becker realized his error of omission, and *therefore, included an asterisk by the 2003 data with "possible disturbance" on the NRC presentation (see Appendix B)*. Additionally, in Becker's Sept. 22, 2008 letter to the MMS editor, he clearly included this one disturbance in an analysis on page 8 (that particular analysis was not used in the final paper).

Then, after the NRC meeting, when revising the MMS paper in late September, 2008, and after the first letter was sent to MMS, D. Press found an additional disturbance event in the comments section of the data sheet for that the 2003 survey day. In sum, there were two actual disturbances in 2003. Becker incorporated both into the final paper which he shared with NRC as soon as it was accepted by the editor of MMS. The MMS editor himself read through and made minor editorial corrections on the near final copy of the paper with the corrected two disturbances in it. Thus, communications to both the NRC (in the presentation and in the final paper) and the MMS editor (in correspondence back and forth) clearly demonstrate that the NPS was openly exchanging information.

## **3. Allegation that NPS withheld information from the MMS editor.**

Dr. Goodman states on page 19 that

*"In his (Becker's) statement in the results section of his paper on lines 319-329, he told us one important fact that he did not tell the Editor in his cover letter when he wrote:*

*"For example, there was still a significant positive correlation ... of disturbance rate with oyster harvest even when removing the 2006 disturbance, four of the*

*2007 disturbances (including two disturbances on one day in 2007 that the mariculture company challenged), and four of the 1996 disturbances (nine total) from the analysis””*

Goodman’s allegation is incorrect. We sent the editor this sample paragraph before final re-acceptance of the paper. The editor approved, and it was included in the final paper. See attached email to the MMS editor in **Appendix C** of this correspondence.

Furthermore, we addressed each one of Dr. Goodman’s September 2008 criticisms directly with the MMS Editor, who in addition to reviewing them himself, passed them on to the Associate Editor of MMS and the two original peer reviewers. Thus, the notion that we cherry-picked data or misled the reviewers in any way is incorrect. In fact, we pointed the reviewers and editor to the DOI Inspector General report. The MMS editor also corresponded directly with the NRC and The California Department of Fish and Game. We also offered to the MMS Editors our raw data and NPS pinniped database, so they could conclude for themselves whether the datasets were credible, that our handling of the data was appropriate, and whether Dr. Goodman’s allegations had any merit.

Dr. Goodman also alleges that by our performing the correlations without some of the disturbances in order to show their robustness of the correlations, we are acknowledging that these disturbances are false. This is incorrect. After discussion with the MMS editor, we chose to include this statement (quoted above) to show that even if some disturbance data are questioned, the positive correlation still exists when those data are not considered. Dr. Goodman had previously disputed only the NPS Trip Report of April 26, 2007 conducted by S. Allen. To demonstrate the robustness of the analyses to small sample size, we removed several disturbances, including the April 26 survey.

#### **4. Inclusion of the 1996-1999, and 2008 disturbance data in the second paper.**

Dr. Goodman states on page 2 that:

*"In Becker II (the second revised version of the Becker et al. paper), Becker cherry-picked the data by arbitrarily going back to 1996 (instead of just 2000) to claim six oyster related disturbances in 1996 (and none in 1997-1999). Four of those six disturbances were fabricated."*

We incorporated more years at the suggestion of Dr. Goodman’s comments to the NRC and MMS in September of 2008. There is no cherry-picking as we included all appropriate data. The 1996-1999 data were not in the database upon preparation of the first version of the MMS paper, but we were able to compile and access it for the revised second submission. Similarly, we had not looked closely at the 2008 disturbance data prior to the first submission, but revisited it for the revision.

On page 2 of his report, Dr. Goodman asserts that we falsified disturbance records in 1996 to improve our statistical results and create a more dramatic graph.

The NPS pinniped database indicates **four** disturbances in 1996. Due to Dr. Goodman's query, we have realized that we accidentally included two *potential* disturbances from 1996 in our calculations since they had a "disturbance = "Yes" entered in the database. In fact, there were 4 oyster related disturbances and 2 oyster related *possible* disturbances. We regret this error but it nonetheless does not alter the statistics or conclusions in any way. We will inform the Editor of MMS of our error and seek his guidance on whether a correction is warranted.

Nevertheless, the removal of two disturbances in 1996 does not change any conclusions or patterns described in the paper (see **Appendix D**). 1996 is still the year with highest rate of disturbance, and the significance and correlation of the oyster harvest-disturbance rate remain exactly the same since we used ranks tests for the analysis. See **Appendix D** for original and new plots. Thus, Dr. Goodman's allegation that we purposely increased the number of disturbances in 1996 to "help" our statistics or create a more dramatic graph is inconsistent with the facts and the analyses.

We assume Dr. Goodman only counts two disturbances in 1996 (rather than four) because he characterizes two of the motorboat related disturbances as non-oyster related while we consider these to be oyster related. As is well known, only oyster company motor boats are allowed in the Estero without special permission and this closure has been in effect since the early 1990s. Goodman's statement that "*many fishing and recreational motorboats enter the estero*" on page 17 of his letter is not supported by park records including law enforcement case reports, harbor seal monitoring field notes and park staff observations.

Finally, cherry-picking is alleged because we did not analyze other disturbance sources in the estero (other than to note the relative frequency of human related disturbance is higher in the lower estero because some of lower estero haul-out sites are attached to the mainland). On November 12, we provided the NRC with a justification for solely analyzing the mariculture related disturbances and we explained in the MMS paper. See **Appendix E**.

##### **5. Allegation that NPS did not follow stated QA/QC protocols:**

Dr. Goodman states on page 12 that:

*"April 29, 2007: Disturbance Survey Violated NPS Protocols."*

Dr. Goodman challenged the validity of the survey based on tide height and the experience of the volunteers on April 29, 2007.

- The MMS paper clearly states that *count* data were filtered for date, observer experience, tide and weather. However, the disturbance data were not subject to these criteria. Disturbances can be recorded at any tide, weather, or observer experience level.

Dr. Goodman appears to have misunderstood NPS procedures for reviewing harbor seal data prior to analysis. All data that we receive from volunteers are entered into the database and prior to analyzing and reporting the data, we review the *count* data to see if any of the surveys were of potentially poor quality and should be discarded from our analysis. Records are never discarded from the database itself, which remain important NPS records.

Each survey is evaluated and assigned a "HighQualityCount?" value of "yes" or "no". A survey may be of poor quality and assigned a value of "no" for the following reasons:

- poor visibility
- not all subsites were surveyed
- poor observer quality of *all* survey participants
- other comments noted on the datasheet, especially in regard to weather conditions

In addition, for the purposes of the Becker et al. paper, we limited the count data used to surveys collected on days with a 2.0 ft tide or less. For our analyses, we extracted the maximum count per survey, and we checked to ensure that the count occurred at a reasonable time in relation to the low tide time.

A key point that Dr. Goodman misrepresents is that although we review each disturbance record in the database for accuracy against the paper data sheet, we do not enforce the additional, above QA/QC procedures on the disturbance data. This is clearly outlined in methods section of the MMS paper. We have confidence that our first year observers, all of who must attend trainings, have the ability to observe, for example, a motorboat flushing harbor seals off a sandbar. Furthermore, it is irrelevant whether or not that disturbance occurs in poor weather conditions or at a high or low tide.

- Dr. Goodman asserted that the volunteers (Mr. and Mrs. Leite) who surveyed on April 29, 2007 did not have more than one year of survey experience and that their first survey was on March 24, 2007 (page 15). This is in fact the date of their first survey in *Drakes Estero*. The Leites, however, began volunteering with our program in April of 2006, spending most of their time at Bolinas Lagoon and Duxbury Reef. In addition, March 24 was not their first survey of the 2007 monitoring season. The databases that store these surveys were delivered to Dr. Goodman in his FOIA requests dated August 2007 and January 2008. In short, the Leites did meet our criteria of having at least one year of prior experience in our program before including their data for analysis.

#### **6. Statement that the MMS paper title is incorrect.**

Dr. Goodman states on page 25 that:

*"Becker cherry-picked the 1996 data, but never changed their title or abstract, which still begins with 1997."*

The paper clearly models data only from 1997-2007, as the title describes. As is clearly explained in the paper, we include disturbance (but not *count*) data from 1996 and 2008. This data is not modeled but only used to report disturbance patterns. Count data were not complete enough to pass QA/QC protocols for 1996, and we did not model 2008 data since it was after reaffirmed guidelines that DBOC avoid seal areas during the breeding season. In fact, eliminating disturbance data that we had available (e.g., 1996 and 2008) would actually be cherry picking. It is difficult to see how including all available data is cherry picking.

### **7. Application of Spearman ranks test to test for correlation between disturbance rate and oyster harvest:**

Dr. Goodman states on page 19 that:

*"Becker told us that "This correlation is highly robust to sample size." As framed by Becker, this may be technically correct given that he cherry-picked both the data he included and the data that he excluded, but it is highly misleading. It is not because the data are so strong, but rather because this kind of correlation (in this case using 1-tailed Spearman ranks test) is a weak test, and can be driven by a single anecdotal observation."*

Contrary to Dr. Goodman's assertion, the S-plus statistical software user's manual indicates that:

*"Because both Kendall's and Spearman's methods are based on ranks, they are not so sensitive to outliers and non normality as the standard Pearson estimate."* (Insightful 2003).

Furthermore, in the MMS paper, our demonstration of the removal of several disturbances with continuing significance proves that the test is not succumbing to the effects of a "single anecdotal observation". Other correlation tests show similar results. Specifically, Pearson correlations (although not appropriate) and Kendall's Tau (which is an appropriate test).

Dr. Goodman also indicates that we must have gone back to the 1996 data only to get a stronger correlation (Page 22). However, if only considering the disturbance rate from 2000 – 2008, the P value is similar ( $P < 0.03$ ), and the Spearman correlation is actually higher ( $r_s = 0.69$ ) than the full time series. Thus, there is no basis for the allegation that we cherry picked data (omission or commission) to improve our statistical results.

### **8. Conclusion**

We note that in previous iterations of his statements, Dr. Goodman criticized our statistical modeling techniques, which are all standard professional practice. His critiques

were closely examined by editors and peer reviewers at MMS and flatly rejected. He now primarily focuses on data handling and alleges we falsified data that were independently collected by several different volunteers and NPS staff. We find Dr. Goodman's statements misguided as evidenced by the conclusions of both the editors of Marine Mammal Science and the DOI Inspector General that there was no evidence of scientific misconduct (see **Appendix F**). Separately, the National Research Council refused to consider his allegations of scientific misconduct. Lastly, during the preparation of the MMS paper and NRC presentations, the database we were working with was available to several different groups, including Dr. Goodman and the NRC. We also offered it to the editor of Marine Mammal Science. Thus, there is no basis for the allegation that we are manipulating data; the raw data are available for these groups to see and arrive at their own conclusions about our analyses and interpretation. Nevertheless, we treat with utmost seriousness Dr. Goodman's persistent allegations of scientific misconduct.

We stand by our procedures and methodology, which are scientifically sound. While we welcome critiques of our scientific studies, the pattern of Dr. Goodman's attacks is concerning insofar as it suggests that his primary goal is not to improve the scientific methodology used by the Park, but rather to cast doubt on the credibility of particular individuals. We value the hard work of the park volunteers, and are saddened to see their veracity questioned in so untoward a manner. We will continue to defend the integrity of our scientific studies and programs.

## **References**

- DOI-OIG. 2008. Investigative Report. Point Reyes National Seashore. U.S. Dept of Interior, Office of Inspector General. Report issued on July 11, 2008. 54 pp.
- INSIGHTFUL. 2003. S-PLUS 6 for Windows Guide to Statistics, Volume 1, Insightful Corporation, Seattle, WA.
- JOHNSON, A., AND A. ACEVEDO-GUTIERREZ. 2007. Regulation compliance by vessels and disturbance of harbor seals (*Phoca vitulina*). Canadian Journal of Zoology 85:290294.
- SURYAN R. M., AND J. T. HARVEY. 1999. Variability in reactions of Pacific harbor seals, *Phoca vitulina richardii*, to disturbance. Fisheries Bulletin 97:332-339.

# APPENDIX A

## Appendix A

### NPS Review of Tidal Patterns and Harbor Seal Behavior in Drakes Estero

On January 18, 2009, Dr. Goodman submitted a document to the National Research Council entitled "New Information Shows that the National Park Service Committed Scientific Misconduct in the Documents it Presented to Your Panel".

Dr. Goodman devotes much of this document to discrediting harbor seal data collected in Drakes Estero on April 29, 2007. On this date, volunteers noted two disturbances by Drakes Bay Oyster Company (DBOC) when workers in a motorboat dropped oyster bags on a sandbar. Dr. Goodman challenged the validity of the April 29 survey based in part on the tide chart for that day and subsequent analysis of tidal patterns in Drakes Estero. Dr. Goodman concluded that no such disturbances could have occurred on April 29, 2007 because the tide was too high.

The April 29 survey began at 9:30 AM and concluded at 3:15 PM, as noted on the datasheet for that day. The harbor seal monitoring program standardizes its tides to San Francisco (Golden Gate Bridge), and the low tide for April 29 was 1.46 ft at 4:25 PM. The first DBOC disturbance occurred at 12:50 PM from DBOC's motorboat. The observers noted that at sandbar UEN, "mom and pup flushed when boat accelerated toward Bull Point from N. end of OB channel after throwing out bags." The second DBOC disturbance, again at sandbar UEN, occurred at 1:40 PM when the "boat returned, threw more bags, left again." The observers conducted the first and only full count of the harbor seals in Drakes Estero at 2:15 PM, documenting a total of 751 harbor seals. The events of the April 29 survey are summarized in Table 1.

Table 1. Summary of significant events on April 29, 2007. Low tide is standardized to San Francisco (Golden Gate Bridge).

Time	Time before low tide	Survey Event
9:30 AM	6 h 55 m	Start of observations.
12:50 PM	3 h 35 m	First DBOC disturbance at sandbar UEN.
1:40 PM	2 h 45 m	Second DBOC disturbance at sandbar UEN.
2:15 PM	2 h 10 m	Complete harbor seal count.
3:15 PM	1 h 10 m	End of observations.

DBOC attempted to better understand how the tides may have looked on April 29, 2007 by asking John Hulls of the Point Reyes Light newspaper to conduct an experiment. Mr. Hulls selected tides on January 1 and 2, 2009 and measured the high tide at sandbar OB to determine that there was an approximate 1.3 hr lag compared to the Point Reyes NOAA buoy tide chart. More importantly, Mr. Hulls measured the tidal heights at which the very highest points on UEN and OB first rose above the water, which were at +3.0 ft and +2.0 ft, respectively. Based on Mr. Hulls' observations in January 2009, Dr. Goodman went back to April 29, 2007 and concluded that the sandbars in Drakes Estero must have been underwater at the time of the disturbance events on that date and, therefore, no seals could have been present to be disturbed.

Dr. Goodman and Mr. Hulls missed several important points in their attempts to 1) model the tides at subsites OB and UEN in Drakes Estero and 2) subsequently predict harbor seal use of these subsites at certain tide levels. We find Mr. Hulls' experiment without merit and find it unreasonable for Dr. Goodman to discredit the April 29, 2007 survey based on an incomplete investigation of tidal and seal haul-out relationships.

Mr. Hulls and Dr. Goodman failed to recognize common harbor seal behavior which invalidates their conclusions that there were no harbor seals present to disturb on April 29, 2007. Researchers of harbor seals at Point Reyes and elsewhere have noted the presence of seals hovering nearby and over the haul out sites before sandbars are exposed by low tide and after sandbars are submerged by rising tides. This is particularly important for females with pups where they can nurse their pups in shallow waters. Flushing harbor seals from a submerged sandbar is entirely possible, and can be especially detrimental during the pupping season.

In regards to the tide experiment, we believe that a sample size of two dates is too small to develop these types of tidal predictions. Second, coastal winds and barometric pressure, which may affect tidal water level, were not taken into account. There can be a marked difference between the observed water level and predicted tidal water level due to winds and barometric pressure along coastal California (Largier et al. 1993). Lastly, it is incorrect to assume that the sandbar heights and configurations did not change between 2007 and 2009. The sandbars naturally shift on a seasonal and annual basis, and larger scale shifts may dominate for several years. In summary, tidal modeling and developing tidal predictions is a sophisticated science that must incorporate a variety of atmospheric, hydrographic and oceanographic driving forces. The NPS relies on our colleagues at NOAA, USGS, and university experts for this type of guidance.

The NPS has conducted its own review of the April 29, 2007 survey and associated tides because of the questions raised by Dr. Goodman. However, the NPS review of the survey took a different approach than Dr. Goodman and Mr. Hulls. We identified six dates during the peak breeding season in 2008 that closely match the tide chart for the April 29 survey. Table 2 shows that the dates selected (April 17-19, 2008 and May 2-4, 2008) more closely match April 29, 2007 than the tides selected by Mr. Hulls for study on January 1 and 2, 2009. Harbor seal use of Drakes Estero, particularly in the middle estero where the April 29 disturbances occurred, is reduced in January, and we felt that it was more appropriate to select dates during the harbor seal breeding season for comparison. Harbor seals haul out more often and for longer time periods during the breeding and molt seasons from March 1 to July 31.

For the six dates selected by NPS for review (Table 2), the NPS examined date and time stamped photographs taken of Drakes Estero by remote camera. The remote camera was on-site at Drakes Estero for the majority of the 2008 breeding season, capturing images every minute from 7:00 AM to 7:00 PM. The camera view encompassed the "lateral" channel with sandbar OB in the foreground.

Examination of the photo series for the selected dates shows that for a low tide similar to that on April 29, 2007, the OB sandbar becomes exposed at the low tide between approximately 3.5 and 2.5 hours prior to the low tide for San Francisco (Table 3).

Table 2. NOAA low tide data for April 29, 2007 and a series of dates selected for study by NPS and DBOC. Tides are standardized to San Francisco (Golden Gate Bridge).

Date	Low Tide Time	Low Tide Height	Type
April 29, 2007	4:25 PM	1.46 ft	Original Survey
April 17, 2008	4:22 PM	0.89 ft	This Study
April 18, 2008	4:56 PM	1.28 ft	This Study
April 19, 2008	5:29 PM	1.68 ft	This Study
May 2, 2008	3:30 PM	1.01 ft	This Study
May 3, 2008	4:13 PM	1.37 ft	This Study
May 4, 2008	4:56 PM	1.74 ft	This Study
January 1, 2009	8:16 AM	2.82 ft	DBOC Study
January 2, 2009	9:17 AM	2.51 ft	DBOC Study

Table 3. Time that harbor seals are first observed at sandbar OB and time that OB is just exposed by the falling low tide on six dates chosen for review by NPS. The time before the low tide is included in parentheses. Tides are standardized to San Francisco (Golden Gate Bridge).

Date	Time of First Harbor Seals	Time Sandbar First Exposed	Low Tide Time	Low Tide Height
April 17, 2008	12:23 PM (3h 59m)	1:17 PM (3h 5m)	4:22 PM	0.89 ft
April 18, 2008	2:01 PM (2h 55m)	2:15 PM (2h 41m)	4:56 PM	1.28 ft
April 19, 2008	1:43 PM (3h 46m)	2:25 PM (3h 4m)	5:29 PM	1.68 ft
May 2, 2008	11:52 AM (3h 38m)	11:58 AM (3h 32m)	3:30 PM	1.01 ft
May 3, 2008	12:54 PM (3h 19m)	13:05 PM (3h 8m)	4:13 PM	1.37 ft
May 4, 2008	2:18 PM (2h 38m)	2:40 PM (2h 16m)	4:56 PM	1.74 ft

In summary, the NPS concludes that subsite UEN may have been slightly underwater at the time this subsite was first disturbed at 12:50 PM on April 29, 2007, which occurred about 3.5 hours before the low tide (Table 1). However, if we accept the findings of Dr. Goodman and Mr. Hulls, who conclude that the UEN sits 1 ft higher than OB, then based on the NPS photographs, subsite UEN would have been well exposed by the time of the first disturbance.

In regards to harbor seal use of the sandbars, on each of the six dates selected by the NPS, harbor seals are clearly seen in the photographs using the OB sandbar *before* the sandbar is actually exposed by the low tide (Table 3). On April 17, 2008, for example, seals were present on the sandbar 40 minutes before it was first exposed by the low tide. By the time the OB sandbar was just exposed, up to a dozen harbor seals could already be seen resting on the sandbar. If Mr. Hulls had conducted his tidal experiment in Drakes Estero at the correct time of year, he too would likely have observed this pattern of harbor seal behavior and drawn different conclusions about the validity of the April 29, 2007 disturbances.

Although our review indicates that the UEN sandbar may have been underwater at 12:50 PM on April 29, 2007, the disturbance record for that day remains reliable based on our review of tidal data and seal behavior at that site. By the time the second DBOC disturbance occurred on April 29, 2007 at 1:40 PM and the complete harbor seal count occurred at 2:15 PM, the sandbars were, without question, well exposed. Although Dr. Goodman insists that "swimming harbor seals cannot be flushed off of a sandbar that is underwater", we have photographic documentation to the contrary.

To illustrate the findings of our inquiry, Figures 1-3 depict sandbar exposure and harbor seal presence at sandbar OB on a falling tide. Although we do not have similar images taken of sandbar UEN, we believe that these photographs provide supporting evidence that the April 29, 2007 survey was accurate for both disturbance and count data.

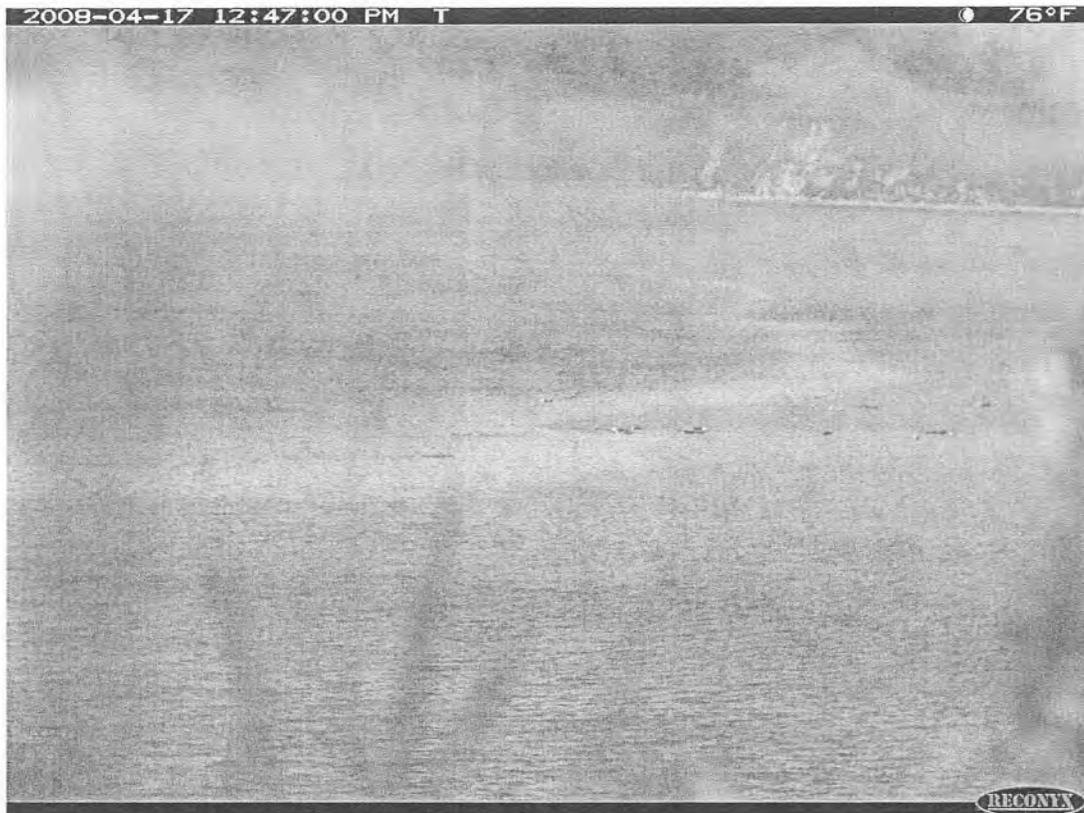


Figure 1. Harbor seals present on sandbar OB prior to exposure of the sandbar to the falling tide. Photograph taken at 12:47 PM on April 17, 2008, 3 hours and 35 minutes prior to a low tide of 0.89 ft at San Francisco. The first disturbance on April 29, 2007 also occurred 3 hours and 35 minutes before the low tide of 1.46 ft.



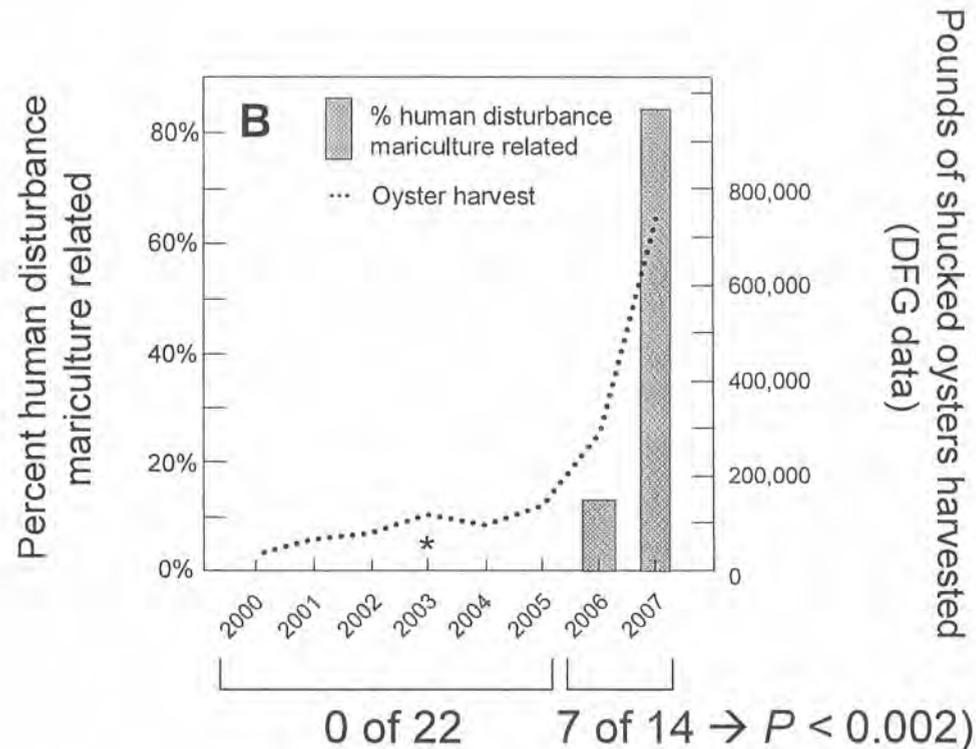
Figure 2. Harbor seals present on sandbar OB on the falling tide. Note paired heads of seals which are likely females with pups. Photograph taken at 2:44 PM on April 19, 2008, 2 hours and 45 minutes prior to a low tide of 1.68 ft at San Francisco. The second disturbance on April 29, 2007 also occurred 2 hours and 45 minutes before the low tide of 1.46 ft.



Figure 3. Harbor seals present on sandbar OB on the falling tide. Photograph taken at 1:20 PM on May 2, 2008, 2 hours and 10 minutes prior to a low tide of 1.01 ft at San Francisco. The full count on April 29, 2007 also occurred 2 hours and 10 minutes before the low tide of 1.46 ft.

## **APPENDIX B**

## Increase in percentage of human-related disturbance in upper estero (OB, UEN, UEF) due to mariculture: 2000 - 2007



- High statistical power ( $1-\beta > 0.91$  at  $\alpha = 0.05$ )
- No mariculture related disturbances in middle-lower estero
- Human disturbance is less frequent in upper estero (~1-2/subsite/yr) than the middle-lower estero (~5 subsite/yr)

\* Possibly one disturbance in 2003

## **APPENDIX C**

Dear Dr. Boness,

Below is an outline of the substantive changes to ms #2668 discussed with either you or proposed by us and accepted by the reviewers. Please note that I used the previous MMS copy edited version as a starting point, hence the formatting style. Because of this, footnotes appear at the end of the document as endnotes. I have listed the most substantive changes in **bold**.

**Introduction:**

No substantive changes

**Methods:**

1. **We now use the updated oyster harvest value for 2007.**
2. **Lines 174-185: We now include disturbance data for 1996 – 2008. Previous paper only had 2000-2007. Count data modeled for 1997-2007 (as before) but we discuss 1996 and 2008 data in the discussion.**
3. **Lines 207 – 212: Description of new tests used to analyze disturbance data as proposed in previous MMS correspondence.**
4. Lines 219-240: Clarified data handling.
5. Lines 257-265: Clarified density dependence data used in models.
6. **Lines 266-275: Description of how we look at density dependence on a daily basis but also investigate effect on an annual mean basis. Description of how we model oyster harvest in the same year, but also investigate 1-year lag.**
7. Lines 303-307: Description of regression tree methods.

**Results:**

1. Lines 312-318: Shortened first paragraph
2. **Lines 319-329: Results of *oyster harvest vs. disturbance* correlation and rank tests. These are all now based on disturbance *rate* rather than *frequency*. We illustrate here that omitting up to nine of the disturbances (including the one in 2006 and 2/3 of those 2007) still would result in a significant increase in disturbance with increase in oyster harvest. Also see Figure 2B. We also note that this includes on lines 325-326: “including two disturbances on one day in 2007 that the mariculture company challenged”. Please let us know if this is OK or if you have a different idea for this statement. Alternatively, we could leave the parenthetical statement out and just leave the part that illustrates dropping many of the disturbance events still results in a significant relationship.**
3. Lines 333-351: New GLM results using updated 2007 oyster harvest value and no time lag for oyster harvest. All model rankings are similar to previous paper.
4. Lines 355-364: GLM analyses also redone to test 1-year vs no year lag effects of oyster harvest, and using density dependence as a daily or annual value. All results were robust to these different approaches with Oyster always being

important in the best models. We focus on same year oyster harvest values, though.

5. Lines 366-373: UEN best model (although weak fit) includes oyster harvest.
6. Lines 374-381: We now report a regression tree that corroborates GLM models. Tree shows lower counts with higher oyster harvest. This replaces prior 2002-2004 to 2005-2007 2-sample tests (t-test, Wilcoxon) comparisons in previous version.

#### Discussion:

1. Shortened first paragraph.
2. Lines 463-476: Discussion of potential reasons why lower performance of predictive model (OB model predicting UEF) when oyster harvest is high.
3. Lines 527-532: Discussion of middle-lower estero counts related to density dependent effects at upper subsites.
4. Lines 546-553: Presentation of unmodeled 1996 count data at OB and how it is low during the highest oyster harvest and the highest disturbance rate during the study period.
5. **Lines 554-577: Discussion of how small increase in 2008 subsite OB count data is consistent with restricted mariculture activity near the subsite due to a new (for 2008) California Coastal Commission guideline, and how disturbances subsequently dropped to only 1 in that year. We also suggest that this operational shift may weaken the simple use of "oyster harvest" as a proxy for modeling counts in the upper estero beyond 2007. Nonetheless, the modeling for 1997-2007 is unaffected.**

#### References:

1. Added Allen *et al.* 1989 (ENSO effects on seals) and Bejder *et al.* 2006 (Disturbance causing local redistribution of Dolphins).

#### Tables:

1. We have removed table 1, as figure 2B now illustrates these patterns and tests. We indicate in the results that human disturbance rates are higher in middle-lower estero.
2. Table 1 (Table 2 in previous version): updated with all new models, rankings are essentially the same.
3. Table 2 (Table 3 in previous version): updated with new best model coefficients.

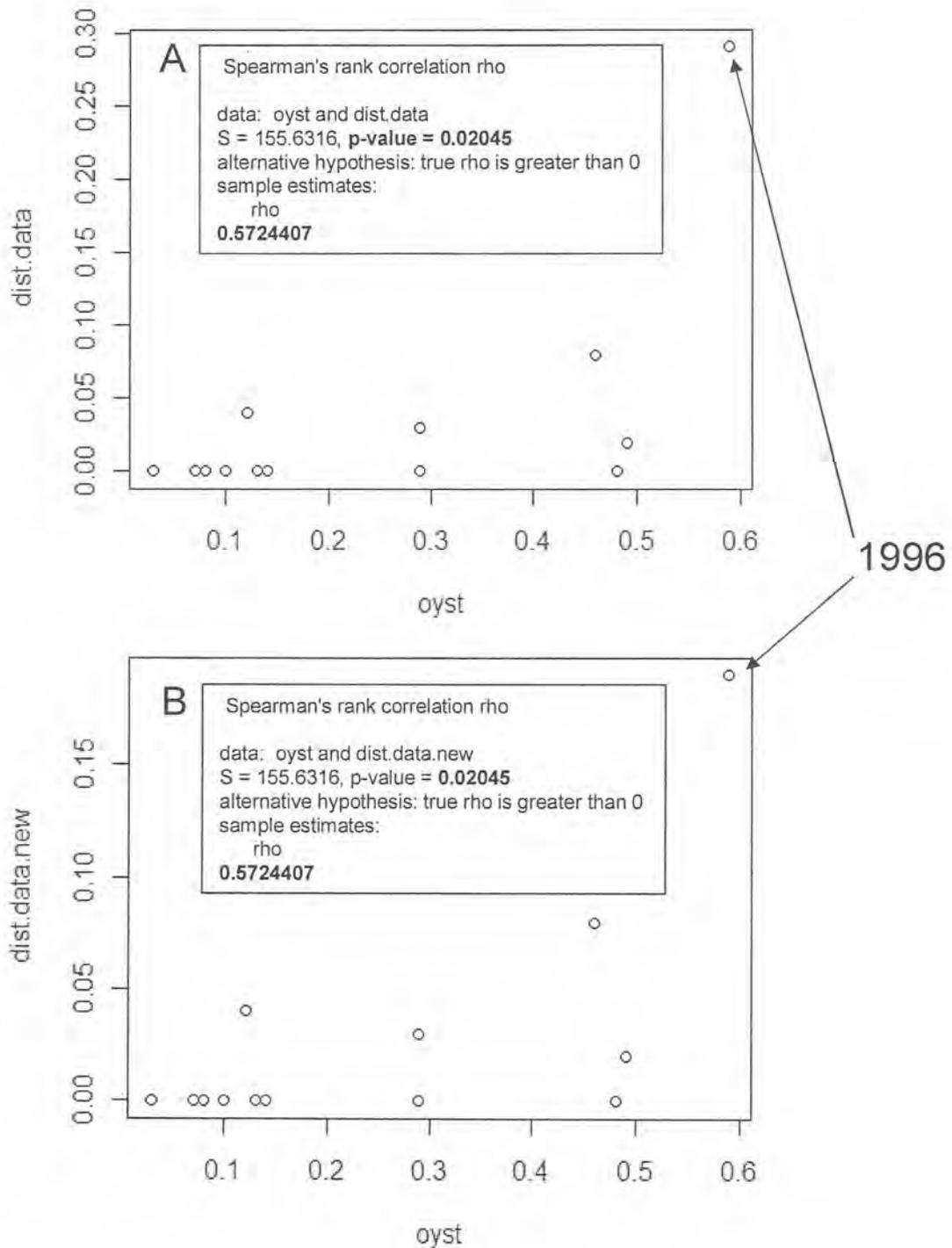
#### Figures:

1. Figure 2A: Now has corrected 2007 oyster harvest value.
2. Figure 2B: New, as proposed to reviewers in previous MMS correspondence. Replaces previous figure 2A.
3. Figure 3A: Similar to previous figure 3A, but is a scatter plot rather than a bar chart.
4. Figure 4: Regression tree replaces bar chart showing recent declines at OB. The new model is described in the text.

5. Figure 5: Drakes Estero Panel has been redone. There was a scaling problem (software bug) in the previous version when drawing multiple panels at the same scale that showed ~15-20% fewer seals than reality at only drakes estero. We also added black bars to the Drakes Estero panel to indicate count pattern for the middle-lower estero used for density-dependence calculations.

## **APPENDIX D**

Appendix D. (A) Original plot used in MMS paper with 6 disturbances in 1996 and (B) corrected plot with 4 disturbances in 1996. Note that 1996 is still by far the highest point, which is why the statistics have *no difference* between datasets. Note that the y-axis scale changes between plots. In the first version (MMS paper), we accidentally counted two *potential* disturbances as *actual* disturbances. "Oyst" is annual lbs. oysters harvested  $\times 10^{-6}$ . See text for details.



## **APPENDIX E**

11/12/2008

To: National Research Council, Panel of Mariculture in Drakes Estero.

From: Ben Becker, David Press, Sarah Allen; Point Reyes National Seashore.

**Re: Rationale for *not* modeling disturbances and counts in the entire Drakes Estero.**

Becker, Press and Allen (MMS, in press) only modeled and considered disturbances in the upper estero (near oyster harvest activities) for the following reasons.

1. Subsites A, A1, OB, and UEN are the primary pupping sites for the Estero (see Figure 1). Thus, with one (and perhaps 2, OB and UEN) important pupping subsite potentially impacted by oyster harvest activities, this merited further investigation. Processes at subsite A were clearly related to attachment to the mainland. A1 was increasing (perhaps due to displacement from other sites such as A or others).
2. Plots of all 8 subsites in Drakes Estero from 1997 – 2007 indicate that the only subsites which experienced a significant decline since 2004 were subsites OB, UEF, and A (Figs 1-3). Subsite A was clearly reduced after attachment to the mainland in or around 2004 which resulted in several coyote predation events. Subsites OB and UEF had no other apparent changes other than proximity to increased oyster activities/harvest. DEM had a decline in 2006-2007, but had high inter-annual variation during the entire time series. Variation at DEM was likely because of changes in size and proximity to mainland due to wave action and tides at the mouth of the estero. Subsite L increased over time (especially in adult use), potentially related to increased visitor education on avoiding seal disturbance at the Limantour Beach access.
3. There was a clear and significant (proportions test or Fisher's exact test) increase in mariculture related disturbances in the upper estero (OB, UEF, UEN). During March-May of 2000-2004, anthropogenic, non-airplane disturbances were limited to one kayak, one clammer, and one oyster related. Then from March-May, 2005-2007, all anthropogenic, non-airplane disturbances, were related to mariculture with one in 2006 and six in 2007. This increase in mariculture related disturbances coincided with a decrease in adult and pups seals counts at subsite OB (and UEF), which warranted further investigation.
4. It is essential to model density-dependence. However, if considering all subsites, then it would not be possible to use the lower-middle estero as a control for density-dependence since all counts could not be assumed independent of the other seven sites (seals do of course move around and a loss at one site would likely result in an increase at another site). Furthermore, other regional colony data prior to 2000 had not been fully compiled before preparation of the manuscript. Nonetheless, local density-dependence (lower-middle estero) is more desirable since it more likely to reflect local processes in the estero because it (1) eliminates other confounding factors such as disturbance effects at other colonies, and (2) is closer, more similar habitat.

11/12/2008

5. Modeling all sites and linking to mariculture would be a form of data dredging (several reviewers indicated this). We chose instead to follow an *a priori* multiple competing hypotheses approach.
6. Modeling disturbances without *a priori* hypotheses can be misleading because disturbance events require both a disturbance source *and* the presence of seals to disturb. This is illustrated clearly at subsite A: as the island attached to the mainland and seals began to abandon the subsite after 2004, disturbances also decreased.

*Three figures follow*

Fig 1. Mean (SE) seal pups at subsites in Drakes Estero during April 15 – May 15 of each year from 1997 - 2007.

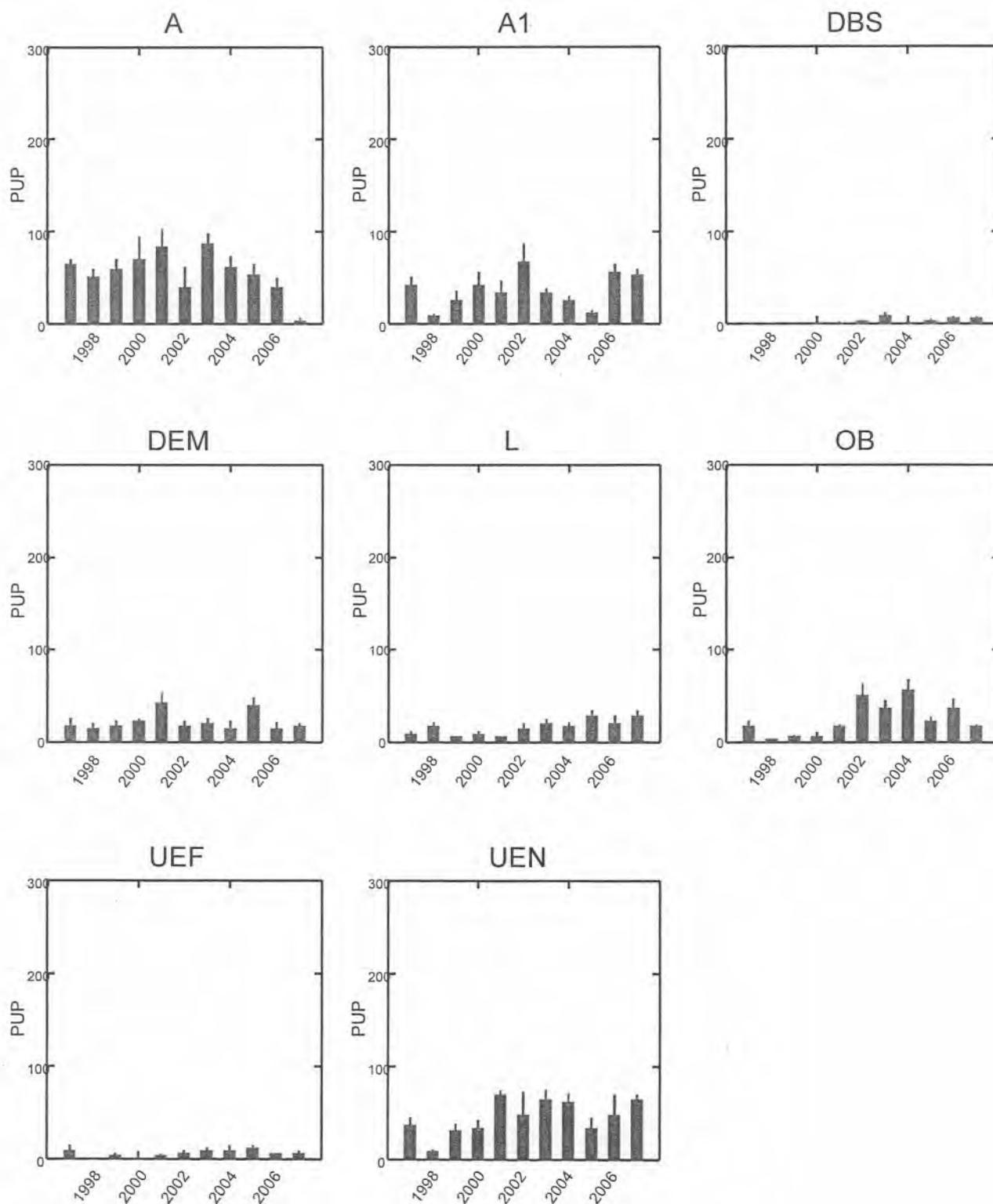


Fig. 2. Mean (SE) **adult** seals at subsites in Drakes Estero during April 15 – May 15 of each year from 1997 - 2007.

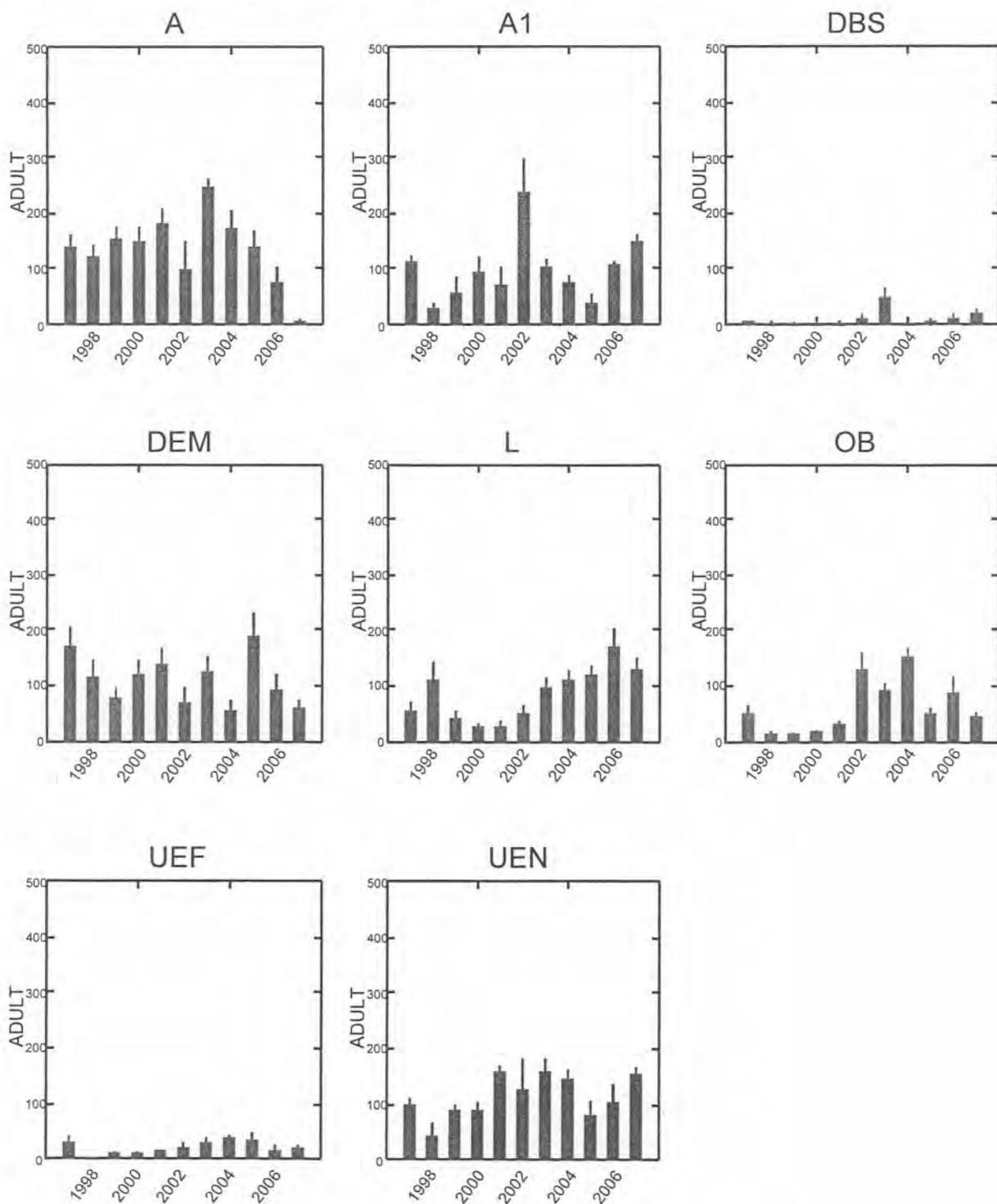
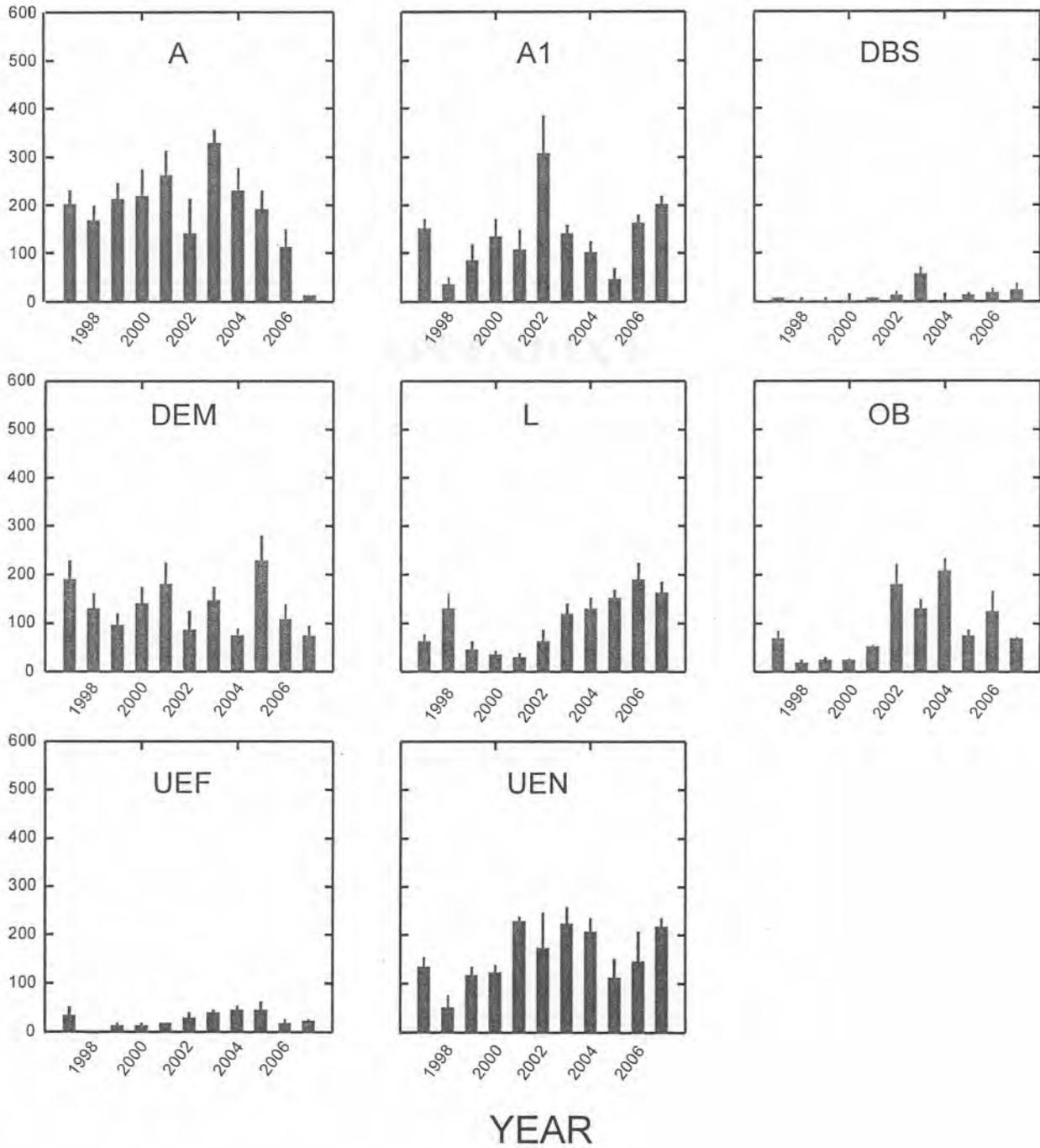


Fig 3. Mean (SE) **total** seals at subsites in Drakes Estero during April 15 – May 15 of each year from 1997 - 2007.





"Daryl Boness"  
<mmsci@megalink.net>  
10/16/2008 08:56 AM

To <Ben\_Becker@nps.gov>  
cc "Marine Mammal Science"  
<marinemammalscience@gmail.com>  
bcc  
Subject Decision on "Modeling the effects of El Niño, density dependence, and disturbance on harbor seal counts..."

History:  This message has been replied to.

Dear Dr. Becker:

I have now received input from some of the original reviewers and Associate Editor on your replies to the concerns and questions raised by Dr. Corey Goodman (and others with similar points being made) concerning your in press paper entitled "Modeling the effects of El Niño, density dependence, and disturbance on harbor seal counts in Drakes Estero, California; 19972007." I have also spoken (or emailed) with Dr. Susan Roberts of the NRC and Dr. Tom Moore of the California Fish & Game. I am satisfied that there is no basis for considering pulling your paper from Marine Mammal Science for ethical grounds (scientific misconduct). The reviews I received based on your responses to Dr. Goodman's questions and your new analyses suggest there is no need to even revise your manuscript before publication should be allowed. I concur with the reviewers that the paper should be allowed to move forward with publication, but I also believe it would be best to include the updated information and improved analyses that you have proposed in your emails to me. In the revised paper, you should acknowledge the questioned data point and at least note that the conclusions would not change whether this point is included or not. Since you have information available on the 2008 harbor seal and oyster harvest levels I would also like to see you include in the discussion a statement about how this might affect your conclusions. It would be helpful if you identified in the revised paper where you have made the substantive changes as you indicate you will in your email replies.

I will process your revised paper as quickly as possible once I receive it. I appreciate your cooperation in this unusual situation regarding your paper that was accepted for publication in Marine Mammal Science.

Sincerely,

Daryl J. Boness  
Editor  
Marine Mammal Science



Dave Press/GOGA/NPS  
05/01/2009 10:52 AM

To: Sarah Allen/PORE/NPS@NPS, Ben  
Becker/PORE/NPS@NPS

cc:

bcc:

Subject: Fw: Response to Allegations

Here are the response documents that we may release. I am working on locating the Word versions. Ben - any thoughts on where those ended up??

Dave

---

David Press  
Ecologist / Data Manager  
San Francisco Area Network  
Inventory and Monitoring Program  
415-331-0168  
415-331-5530 (FAX)

----- Forwarded by Dave Press/GOGA/NPS on 05/01/2009 10:51 -----



Don Neubacher  
04/30/2009 15:45 PDT

To: Dave Press/GOGA/NPS@NPS, George  
Turnbull/OAKLAND/NPS@NPS  
cc: Jon Jarvis/OAKLAND/NPS@NPS  
Subject: Response to Allegations

Dave and Ben are reviewing text one last time.

Don

---

Don Neubacher  
Superintendent  
Point Reyes National Seashore  
Point Reyes Station, CA 94956

415-464-5101 (office)  
415-663-8132 (fax)

The National Park Service cares for special places saved by the American people so that all may experience our heritage.

----- Forwarded by Don Neubacher/PORE/NPS on 04/30/2009 03:45 PM -----



Dave Press/GOGA/NPS  
02/08/2009 03:53 PM

To: Don Neubacher/PORE/NPS@NPS

cc:

Subject: draft documents

Don,  
Here are our draft responses as of Monday afternoon

Dave



Goodman\_response\_Feb\_2009-DRAFT\_CompleteFinal.pdf DRAFT Goodman Response Briefing.pdf

---

David Press  
Ecologist / Data Manager  
San Francisco Area Network  
Inventory and Monitoring Program  
415-331-0168  
415-331-5530 (FAX)



Don Neubacher  
04/30/2009 15:45 PDT

To: Dave Press/GOGA/NPS@NPS, George  
Turnbull/OAKLAND/NPS@NPS  
cc: Jon Jarvis/OAKLAND/NPS@NPS  
Subject: Response to Allegations

Dave and Ben are reviewing text one last time.

Don

---

Don Neubacher  
Superintendent  
Point Reyes National Seashore  
Point Reyes Station, CA 94956

415-464-5101 (office)  
415-663-8132 (fax)

The National Park Service cares for special places saved by the American people so that all may experience our heritage.

— Forwarded by Don Neubacher/PORE/NPS on 04/30/2009 03:45 PM —



Dave Press/GOGA/NPS  
02/09/2009 03:53 PM

To: Don Neubacher/PORE/NPS@NPS  
cc:  
Subject: draft documents

Don,  
Here are our draft responses as of Monday afternoon.

Dave



Goodman\_response\_Feb\_2009-DRAFT\_CompleteFinal.pdf DRAFT Goodman Response Briefing.pdf

---

David Press  
Ecologist / Data Manager  
San Francisco Area Network  
Inventory and Monitoring Program  
415-331-0168  
415-331-5530 (FAX)

Ben Becker/PORE/NPS  
02/06/2009 11:36 AM

To: Sarah Allen/PORE/NPS@NPS  
cc:  
bcc:  
Subject: quote

New quote for section 4

---

Dr. Goodman states on page 2 that:

*"In Becker II (the second revised version of the Becker et al. paper), Becker cherry-picked the data by arbitrarily going back to 1996 (instead of just 2000) to claim six oyster related disturbances in 1996 (and none in 1997-1999). Four of those six disturbances were fabricated"*

---

Ben Becker, Ph.D.  
Director and Marine Ecologist  
Pacific Coast Science and Learning Center  
Point Reyes National Seashore  
1 Bear Valley Road  
Point Reyes Station, CA 94956

tel: 415-464-5247  
fax: 415-868-1202  
ben\_becker@nps.gov  
<http://home.nps.gov/pore/parkmgmt/pcslc.htm>

---

The Pacific Coast Science and Learning Center is one of 21 Research Learning Centers at National Parks across the country working to increase the effectiveness and communication of research and science through:

- Facilitating the use of parks for scientific inquiry
- Supporting science-informed decision making
- Communicating relevance and providing access to research knowledge
- Promoting resource stewardship through partnerships

Ben Becker/PORE/NPS  
02/06/2009 11:30 AM

To: Sarah Allen/PORE/NPS@NPS  
cc:  
bcc:  
Subject: small change

I made a small changes to part 2 after looking at my correspondence with MMS. see attached.

-ben



Goodman\_response\_Feb\_2009-DRAFT\_SA\_DG\_BB\_edit\_v2.1.doc

---

Ben Becker, Ph.D.  
Director and Marine Ecologist  
Pacific Coast Science and Learning Center  
Point Reyes National Seashore  
1 Bear Valley Road  
Point Reyes Station, CA 94956

tel: 415-464-5247  
fax: 415-868-1202  
ben\_becker@nps.gov  
<http://home.nps.gov/pore/parkmgmt/pcslc.htm>

---

The Pacific Coast Science and Learning Center is one of 21 Research Learning Centers at National Parks across the country working to increase the effectiveness and communication of research and science through:

- Facilitating the use of parks for scientific inquiry
- Supporting science-informed decision making
- Communicating relevance and providing access to research knowledge
- Promoting resource stewardship through partnerships

**NPS Response to Goodman 01/18/2009 Letter to NRC.**

This document addresses the allegations and criticisms put forth in a January 18, 2009 letter from Dr. Corey Goodman to the National Research Council (NRC). Because the letter addresses many themes and frequently revisits themes in a non-linear fashion, we have reorganized what we believe are the salient points and address them in turn below. Several of the short responses below are supported by additional referenced documents that are attached in appendices.

Ben Becker  
David Press  
Sarah Allen

**1. Allegation that NPS falsified data on harbor seal disturbance events.**

Dr. Goodman states on page 2 and on numerous other pages in his letter to the NRC that

*"Simply said, NPS presented you with false science. It is physically impossible for the disturbance events to have taken place as described..."*

The allegation of falsified data is based on several incorrect assumptions. Dr. Goodman assumes that the seals do not use the site when the sandbars are submerged, that seals are not disturbed by sources > 300 ft away, that DBOC generally does not operate boats on Sundays, and that several volunteers and NPS staff separately Ex 5 fabricated data on disturbances on several days of field observations. There is no supporting evidence for these allegations and we refute them with actual data.

- Assumption that seals do not use submerged sandbars. (Page xx) Ex 5  
Ex 5  
Ex 5 Seals (especially mothers with pups) regularly hover over sandbars in Drakes Estero before they are exposed by rising or falling tides, and this is a common behavior of harbor seals. Furthermore, the disturbances documented by NPS were recorded during the *breeding* season when females and pups are commonly on these sandbars. Seals use these sandbars less frequently during January when DBOC conducted their "experiment" that Goodman cited in his letter.
- Assumption that seals are not disturbed beyond the 300 foot Protective Zone (Page xx) Dr. Goodman states that DBOC agreed to a 300 foot protective zone, and therefore, implies that seals could not be disturbed at distances greater than 300 ft. The National Marine Fisheries Service generally recommends a distance of 300 ft (100m) for not disturbing marine mammals; however, there is ample information in the published literature that documents harbor seals being disturbed at greater distances. Johnson and Gutierrez (2007) document power boats disturbing harbor seals in Washington at an average distance of 625 ft.

DRAFT Goodman Response Feb 5, 2009 FOR INTERNAL REVIEW ONLY – PRE DECISIONAL

(190.5 m) and as far as 1217 ft (371 m). Suryan and Harvey (1999) in another study in Washington document that 25% of disturbances to harbor seals occurred at a distance of 656-984 ft (200-300 m). Aircraft at high altitude also disturb harbor seals depending upon the amount of noise generated by the aircraft. It is not unreasonable that harbor seals in Drakes Estero were disturbed by boat noise generated at distances greater than 300 ft.

- Assumption that DBOC does not operate on Sundays. Dr. Goodman states that DBOC does not normally operate on Sundays (Page xx). We do not know at what frequency that DBOC boats operate on weekends; however, the DOI OIG investigation reports that DBOC personnel did not log in boat use when they used the boat in Drakes Estero for recreational fishing (see page xx of the DOI-OIG report. In addition, NPS has time stamped images of a DBOC boat present on Drakes Estero on March 23, 2008, a Sunday (see Appendix XX).
- Assumption of improbability of disturbances (Page xx). Dr. Goodman discounts the two April 29 disturbance events partly because they occurred so close together (50 minutes) that the boat would not have had enough time to return to the dock, pick up more bags, and then travel back to sandbar UEN. In fact, the volunteers never stated in their field notes that the boat returned to the dock and then came back between the disturbance events. Why Dr. Goodman made this assumption, and subsequently discounted the events as logistically impossible is unclear.
- Assumption that there are no other DBOC disturbance records (Page xx). Dr. Goodman incorrectly states that as of April 29, 2007 there were no data documenting disturbances to harbor seals by DBOC. In fact, the database contains unambiguous records from April 26, 2007 documenting disturbances at multiple sites. An additional disturbance occurred the previous year on May 6, 2006.
- Assumption that count occurred on April 29 at 3:15. Dr. Goodman used a different start time at which the volunteers conducted their full count of Drakes Estero from what is in the pinniped database. The database and datasheet clearly document that the data were collected at 2:15 PM. However, apparently based on a note on the photocopied datasheet Dr. Goodman assumes that the data were collected at 3:15 PM in his letter (Page 7).

*"Based upon the tide chart with appropriate lag correction, it would have been difficult if not impossible for them to count seals on UEN and OB until 15:15. If the tide was too high and they couldn't count the seals on UEN or OB until 15:15, then how could they record a disturbance at 12:50?"*

The field data sheet from the survey on April 29, 2007 reads, "poor tide – counted when could – had to leave at 3:15." Dr. Goodman mistakenly concluded that the volunteers could not count the harbor seals until 3:15 PM, which supported his claims that earlier disturbances could not have occurred.

Ex 5

2. Allegation that disturbance data were covertly **Ex 5** manipulated among versions of the MMS paper:

Dr. Goodman states on page 16 in his letter to the NRC stated that:

*"The 2003 disturbance data changed from Becker I to Becker II with no comment about why these data were missed in Becker I or how they were found for Becker II."*

During preparation for the first Marine Mammal Science (MMS) journal submission, Becker inadvertently overlooked the 2003 disturbances. The datum (one disturbance) was in the dataset that D. Press, the NPS data manager, provided to Becker preparing the first MMS manuscript. While preparing for the NRC presentation on September 4, 2008, Becker realized his error of omission, and *therefore, included an asterisk by the 2003 data with "possible disturbance" on the NRC presentation (see Appendix B).*

Additionally, in Becker's Sept. 23, 2008 letter to the MMS editor, he clearly included this one disturbance in an analysis on page 8 (that particular analysis was not used in the final paper).

Then, after the NRC meeting and when revising the MMS paper in late September, 2008, after the first letter was sent to MMS, **Ex 5** Press found an additional disturbance event in the comments section of the data sheet for that survey day. In sum, there were two actual disturbances in 2003. Becker incorporated both into the final paper which he shared with NRC as soon as it was accepted by the editor of MMS. Then the MMS editor himself read through and made minor editorial corrections on the final copy of the paper with the corrected two disturbances in it. **Ex 5**

**Ex 5**

3. Allegation that NPS withheld information from the MMS editor.

Dr. Goodman states on page 19 that:

*"In his (Becker's) statement in the results section of his paper on lines 319-329, he told us one important fact that he did not tell the Editor in his cover letter when he wrote:*

*"For example, there was still a significant positive correlation ... of disturbance rate with oyster harvest even when removing the 2006 disturbance, four of the 2007 disturbances (including two disturbances on one day in 2007 that the mariculture company challenged), and four of the 1996 disturbances (nine total) from the analysis"*

Goodman's allegation is incorrect. We sent the editor this sample paragraph before final re-acceptance of the paper. The editor approved, and it was included in the final paper. See attached email to the MMS editor in **Appendix C** of this correspondence.

Furthermore, we addressed each one of Dr. Goodman's September 2008 criticisms directly with the MMS Editor, who in addition to reviewing them himself, passed them on to the Associate Editor of MMS and the two original peer reviewers. Thus, the notion that we cherry-picked data or misled the reviewers in any way is incorrect. In fact, we pointed the reviewers and editor to the DOI Inspector General report. The MMS editor also corresponded directly with the NRC and The California Department of Fish and Game. We also offered to the MMS Editor our raw data and NPS pinniped database, so they could conclude for themselves. Ex 5 of Dr. Goodman's allegations, Ex 5

Ex 5 Dr. Goodman also Ex 5 alleges that by our performing the correlations without some of the disturbances to show their robustness to sample size, we are acknowledging that these disturbances are false. This is incorrect. After discussion with the MMS editor, we chose to include this statement (quoted above) Ex 5 Ex 5 Goodman had previously Ex 5 dis(b)(5) only the NPS Trip Report of April 26, 2007 conducted by S. Allen. To demonstrate the robustness of the analyses to smaller sample sizes, we removed several disturbances, including the April 26 survey.

4. Inclusion of the 1996-1999, and 2008 disturbance data in the second paper.

Dr. Goodman states Ex 5 Ex 5

Ex 5

We incorporated more years at the urging of Dr. Goodman Ex 5 comments to the NRC and MMS in September of 2008. There is no cherry-picking as we included ALL all appropriate data. The 1996-1999 data were not in the previous database upon preparation of the first version of the MMS paper, but we were able to compile and access it for the revised second submission. Similarly, we had not looked closely at the 2008 disturbance data prior to the first submission, but revisited it for the revision.

On page 2 of his report, Dr. Goodman asserts that we falsified disturbance records in 1996 to improve our statistical results and create a more dramatic graph.

The NPS pinniped database indicates **four** disturbances in 1996. Due to Dr. Goodman's query, we have realized that we accidentally included two *potential* disturbances from 1996 in our calculations since they had a "disturbance = "Yes" entered in the database. In fact, there were 4 oyster related disturbances and 2 oyster related *possible* disturbances. We regret this error but it nonetheless does not alter the statistics or conclusions in any way. We will inform the Editor of MMS of our error and seek his guidance on whether a correction is warranted.

Nevertheless, the removal of **Ex 5** ~~two~~ disturbances in 1996 does not change any conclusions or patterns described in the paper (see **Appendix D**). 1996 is still the year with highest rate of disturbance, and the significance and correlation of the oyster harvest-disturbance rate remain exactly the same since we used ranks tests for the analysis. See **Appendix D** for original and new plots. Thus, Dr. Goodman's allegation that we purposely increased the number of disturbances in 1996 to "help" ~~our statistics or~~ create a more dramatic graph is inconsistent with the facts and the ~~analyse~~ **Ex 5**

We assume Dr. Goodman only counts two disturbances in 1996 (rather than four) because he characterizes two of the motorboat related disturbances as non-oyster related while we consider these to be oyster related. As is well known, only oyster company motor boats are allowed in the Estero without special permission and this closure has been in effect since the early 1990s. Goodman's statement that "*many fishing and recreational motorboats enter the estero*" on page 17 of his letter is not supported by park records including law enforcement case reports, harbor seal monitoring field notes and park staff observations.

Finally, cherry-picking is alleged because we did not analyze other disturbance sources in the estero (other than to note the relative frequency of human related disturbance is higher in the lower estero because ~~some of~~ the lower estero haul-out sites are attached to the mainland). On November 12, we provided the NRC with a justification for solely analyzing the mariculture related disturbances and we explained in the MMS paper: See **Appendix E**.

#### 5. Allegation that NPS did not follow stated QA/QC protocols:

Dr. Goodman states on page 12 that:

*"April 29, 2007: Disturbance Survey Violated NPS Protocols."*

Dr. Goodman makes several assumptions regarding NPS protocols which are incorrect.

- The MMS paper clearly states that *count* data were filtered for date, observer experience, tide and weather. However, the disturbance data were not subject to these criteria. Disturbances can be recorded at any tide, weather, or observer experience level. **Ex 5**

**Ex 5**

Formatted: Bullets and Numbering

In addition, for the purposes of the Becker et al. paper, we limited the count data used to surveys collected on days with a 2.0 ft tide or less. For our analyses, we extracted the maximum count per survey, and we checked to ensure that the count occurred at a reasonable time in relation to the low tide time.

Ex 5

Dr. Goodman appears to have misunderstood NPS procedures for reviewing harbor seal data prior to analysis. All data that we receive from volunteers is entered into the database and prior to analyzing and reporting the data, we review the *count* data to see if any of the surveys were of potentially poor quality and should be discarded from our analysis. Records are never discarded from the database itself, which remain important NPS records.

Ex 5

Each survey is evaluated and assigned a "HighQualityCount?" value of "yes" or "no". A survey may be of poor quality and assigned a value of "no" for the following reasons:

- poor visibility
  - not all subsites were surveyed
  - poor observer quality of *all* survey participants
  - other comments noted on the datasheet, especially in regards to weather conditions
- Dr. Goodman asserted that the volunteers (Mr. and Mrs. Leites) who surveyed on April 29, 2007 did not have more than one year of survey experience and that their first survey was on March 24, 2007 (Page xx). This is in fact the date of their first survey in *Drakes Estero*. The Leites, however, began volunteering with our program in April of 2006, spending most of their time at Bolinas Lagoon and Duxbury Reef. In addition, March 24 was not their first survey of the 2007 monitoring season. The databases that store these surveys were delivered to Dr. Goodman in his FOIA requests dated August 2007 and January 2008. In short, the Leites did meet our criteria of having at least one year of prior experience in our program before including their data for analysis.
  - A key point that Dr. Goodman misrepresents is that although we review each disturbance record in the database for accuracy against the paper data sheet, we do not enforce the additional, above QA/QC procedures on the disturbance data. This is clearly outlined in methods section of the MMS paper.

Ex 5

Ex 5

Ex 5

We have confidence that our first year observers, all of which whom must attend our trainings, have the ability to observe, for example, a motorboat flushing harbor seals off a sandbar. Furthermore, it is irrelevant whether or not that disturbance occurs in poor weather conditions or at a high or low tide.

6. Statement that the MMS paper title is incorrect.

DRAFT Goodman Response Feb 5, 2009 FOR INTERNAL REVIEW ONLY – PRE DECISIONAL

Dr. Goodman states on page 25 that

*“Becker cherry-picked the 1996 data, but never changed their title or abstract, which still begins with 1997.”*

The paper clearly models data only from 1997-2007, as the title describes. As is clearly explained in the paper, we include disturbance (but not count) data from 1996 and 2008. This data is not modeled but only used to report disturbance patterns. Count data were not complete enough to pass QA/QC protocols for 1996, and we did not model 2008 count data since it was after reaffirmed guidelines that the oyster company avoid seal areas during the breeding season. In fact, eliminating disturbance data that we had available (e.g. 1996 and 2008) would actually be cherry picking. It is difficult to see how including all available data is cherry picking.

Ex 5

Ex 5

#### 7. Application of Spearman ranks test to test for correlation between disturbance rate and oyster harvest:

Dr. Goodman states on page 19 that:

“Becker told us that *“This correlation is highly robust to sample size.”* As framed by Becker, this may be technically correct given that he cherry-picked both the data he included and the data that he excluded, but it is highly misleading. It is not because the data are so strong, but rather because this kind of correlation (in this case using 1-tailed Spearman ranks test) is a weak test, and can be driven by a single anecdotal observation.”

Contrary to Dr. Goodman’s assertion, the S-plus statistical software user’s manual indicates that:

“Because both Kendall’s and Spearman’s methods are based on ranks, they are not so sensitive to outliers and non normality as the standard Pearson estimate.” (Insightful 2003).

Furthermore, in the MMS paper, our demonstration of the removal of several disturbances with continuing significance proves that the test is not succumbing to the effects of a “single anecdotal observation”. Other correlation tests show similar results. Specifically, Pearson correlations (although not appropriate) and Kendall’s Tau (which is an appropriate test).

Dr. Goodman also indicates that we must have gone back to the 1996 data only to get a stronger correlation (Page 22). However, if only considering the disturbance rate from 2000 – 2008, the P value is similar ( $P < 0.03$ ), and the Spearman correlation is actually higher ( $r_s = 0.69$ ) than the full time series. Thus, there is no basis for the allegation that we cherry picked data (omission or commission) to improve our statistical results.

In conclusion, we note that in previous iterations of his statements, Dr. Goodman criticized our statistical modeling techniques, which are all standard professional practice. His critiques were closely examined by editors and peer reviewers at MMS and flatly rejected. He now primarily focuses on data handling and alleges we falsified data that were independently collected by several different volunteers and NPS staff. We find Dr.

DRAFT Goodman Response Feb 5, 2009 FOR INTERNAL REVIEW ONLY – PRE DECISIONAL

Goodman's statements misguided as evidenced by the conclusions by the independent groups the Marine Mammal Science and the DOI Inspector General that there was no evidence of scientific misconduct. Separately, the National Research Council refused to consider his allegations of scientific misconduct. Lastly, during the preparation of the MMS paper and NRC presentations, the database we were working with was available to several different groups, including Dr. Goodman and the NRC. We also offered it to the editor of Marine Mammal Science. Thus, there is no basis for the allegation that we are manipulating data; the raw data are available for these groups to see and arrive at their own conclusions about our analyses and interpretation. Nevertheless, we treat with utmost seriousness Dr. Goodman's persistent allegations of scientific misconduct.

We stand by our procedures and methodology, which are scientifically sound. While we welcome critiques of our scientific studies, the pattern of Dr. Goodman's attacks is concerning insofar as it suggests that his primary goal is not to improve the scientific methodology used by the Park, but rather to cast doubt on the credibility of particular individuals. We value the hard work of the park volunteers, and are saddened to see their veracity questioned in so untoward a manner. We will continue to defend the integrity of our scientific studies and programs.

INSIGHTFUL. 2003. S-PLUS 6 for Windows Guide to Statistics, Volume 1, Insightful Corporation. Seattle, WA.

JOHNSON, A., AND A. ACEVEDO-GUTIERREZ. 2007. Regulation compliance by vessels and disturbance of harbor seals (*Phoca vitulina*). *Canadian Journal of Zoology* 85:290294.

SURYAN R. M., AND J. T. HARVEY. 1999. Variability in reactions of Pacific harbor seals, *Phoca vitulina richardii*, to disturbance. *Fisheries Bulletin* 97:332–339.

Ben Becker/PORE/NPS  
02/06/2009 09:59 AM

To: Sarah Allen/PORE/NPS@NPS  
cc:  
bcc:  
Subject: Re: draft 

Hi Sarah,

see my edits, mostly needs for page numbers and a correct quote from goodman.

thanks,

-ben



Goodman\_response\_Feb\_2009-DRAFT\_SA\_DG\_BB\_edit\_v2.doc

---

Ben Becker, Ph.D.  
Director and Marine Ecologist  
Pacific Coast Science and Learning Center  
Point Reyes National Seashore  
1 Bear Valley Road  
Point Reyes Station, CA 94956

tel: 415-464-5247  
fax: 415-868-1202  
ben\_becker@nps.gov  
<http://home.nps.gov/pore/parkmgmt/pcslc.htm>

---

The Pacific Coast Science and Learning Center is one of 21 Research Learning Centers at National Parks across the country working to increase the effectiveness and communication of research and science through:

- Facilitating the use of parks for scientific inquiry
- Supporting science-informed decision making
- Communicating relevance and providing access to research knowledge
- Promoting resource stewardship through partnerships

Sarah Allen/PORE/NPS



Sarah Allen/PORE/NPS  
02/06/2009 07:07 AM

To: Ben Becker/PORE/NPS@NPS  
cc: sarah\_allen@nps.gov, dave\_press@nps.gov  
Subject: Re: draft

here is my recent update - the highlighted areas need to be completed by dave, you or myself - I think you

are finished and it is just dave and I that have to put in page numbers, images etc.

you might look at it one more time with a clear hear?

Thanks

[attachment "Goodman\_response\_Feb\_2009-DRAFT\_SA\_DG\_BB\_edit.doc" deleted by Ben  
Becker/PORE/NPS]

**NPS Response to Goodman 01/18/2009 Letter to NRC.**

This document addresses the allegations and criticisms put forth in a January 18, 2009 letter from Dr. Corey Goodman to the National Research Council (NRC). Because the letter addresses many themes and frequently revisits themes in a non-linear fashion, we have reorganized what we believe are the salient points and address them in turn below. Several of the short responses below are supported by additional referenced documents that are attached in appendices.

Ben Becker  
David Press  
Sarah Allen

**1. Allegation that NPS falsified data on harbor seal disturbance events.**

Dr. Goodman states on page 2 and on numerous other pages in his letter to the NRC that

*"Simply said, NPS presented you with false science. It is physically impossible for the disturbance events to have taken place as described..."*

The allegation of falsified data is based on several incorrect assumptions. Dr. Goodman assumes that the seals do not use the site when the sandbars are submerged, that seals are not disturbed by sources > 300 ft away, that DBOC generally does not operate boats on Sundays, and that several volunteers and NPS staff separately fabricated data on disturbances on several days of field observations. There is no supporting evidence for these allegations and we refute them with actual data.

- Assumption that seals do not use submerged sandbars. (Page xx) Ex 5  
Ex 5  
Ex 5  
Seals (especially mothers with pups) regularly hover over sandbars in Drakes Estero before they are exposed by rising or falling tides, and this is a common behavior of harbor seals. Furthermore, the disturbances documented by NPS were recorded during the *breeding* season when females and pups are commonly on these sandbars. Seals use these sandbars less frequently during January when DBOC conducted their "experiment" that Goodman cited in his letter.
- Assumption that seals are not disturbed beyond the 300 foot Protective Zone (Page xx)–Dr. Goodman states that DBOC agreed to a 300 foot protective zone, and therefore, implies that seals could not be disturbed at distances greater than 300 ft. The National Marine Fisheries Service generally recommends a distance of 300 ft (100m) for not disturbing marine mammals; however, there is ample information in the published literature that documents harbor seals being disturbed at greater distances. Johnson and Gutierrez (2007) document power boats disturbing harbor seals in Washington at an average distance of 625 ft

(190.5 m) and as far as 1217 ft (371 m). Suryan and Harvey (1999) in another study in Washington document that 25% of disturbances to harbor seals occurred at a distance of 656-984 ft (200-300 m). Aircraft at high altitude also disturb harbor seals depending upon the amount of noise generated by the aircraft. It is not unreasonable that harbor seals in Drakes Estero were disturbed by boat noise generated at distances greater than 300 ft.

- Assumption that DBOC does not operate on Sundays. Dr. Goodman states that DBOC does not normally operate on Sundays (Page xx). We do not know at what frequency that DBOC boats operate on weekends; however, the DOI OIG investigation reports that DBOC personnel did not log in boat use when they used the boat in Drakes Estero for recreational fishing (see page xx of the DOI-OIG report). In addition, NPS has time stamped images of a DBOC boat present on Drakes Estero on March 23, 2008, a Sunday (see Appendix XX).
- Assumption of improbability of disturbances (Page xx)- Dr. Goodman discounts the two April 29 disturbance events partly because they occurred so close together (50 minutes) that the boat would not have had enough time to return to the dock, pick up more bags, and then travel back to sandbar UEN. In fact, the volunteers never stated in their field notes that the boat returned to the dock and then came back between the disturbance events. Why Dr. Goodman made this assumption, and subsequently discounted the events as logistically impossible is unclear.
- Assumption that there are no other DBOC disturbance records (Page xx)- Dr. Goodman incorrectly states that as of April 29, 2007 there were no data documenting disturbances to harbor seals by DBOC. In fact, the database contains unambiguous records from April 26, 2007 documenting disturbances at multiple sites. An additional disturbance occurred the previous year on May 6, 2006.
- Assumption that count occurred on April 29 at 3:15 - Dr. Goodman used a different start time at which the volunteers conducted their full count of Drakes Estero from what is in the pinniped database. The database and datasheet clearly document that the data were collected at 2:15 PM. However, apparently based on a note on the photocopied datasheet Dr. Goodman assumes that the data were collected at 3:15 PM in his letter (Page 7).

*"Based upon the tide chart with appropriate lag correction, it would have been difficult if not impossible for them to count seals on UEN and OB until 15:15. If the tide was too high and they couldn't count the seals on UEN or OB until 15:15, then how could they record a disturbance at 12:50?"*

The field data sheet from the survey on April 29, 2007 reads, "poor tide – counted when could – had to leave at 3:15." Dr. Goodman mistakenly concluded that the volunteers could not count the harbor seals until 3:15 PM, which supported his claims that earlier disturbances could not have occurred.

Ex 5

**2. Allegation that disturbance data were covertly <sup>Ex 5</sup> manipulated among versions of the MMS paper:**

Dr. Goodman states on page 16 in his letter to the NRC stated that:

*"The 2003 disturbance data changed from Becker I to Becker II with no comment about why these data were missed in Becker I or how they were found for Becker II."*

During preparation for the first Marine Mammal Science (MMS) journal submission, Becker inadvertently overlooked the 2003 disturbances. The datum (one disturbance) was in the dataset that D. Press, the NPS data manager, provided to Becker preparing the first MMS manuscript. While preparing for the NRC presentation on September 4, 2008, Becker realized his error of omission, and *therefore, included an asterisk by the 2003 data with "possible disturbance" on the NRC presentation (see Appendix B)*. Then, after the NRC meeting and when revising the MMS paper in late September, 2008, Becker and D. Press found an additional disturbance event in the comments section of the data sheet for that survey day. In sum, there were two actual disturbances in 2003. Becker incorporated both into the final paper which he shared with NRC as soon as it was accepted by the editor of MMS. <sup>Ex 5</sup>

Ex 5

**3. Allegation that NPS withheld information from the MMS editor.**

Dr. Goodman states on page 19 that:

*"In his (Becker's) statement in the results section of his paper on lines 319-329, he told us one important fact that he did not tell the Editor in his cover letter when he wrote:*

*"For example, there was still a significant positive correlation ... of disturbance rate with oyster harvest even when removing the 2006 disturbance, four of the 2007 disturbances (including two disturbances on one day in 2007 that the mariculture company challenged), and four of the 1996 disturbances (nine total) from the analysis"*

Goodman's allegation is incorrect. We sent the editor this sample paragraph before final re-acceptance of the paper. The editor approved, and it was included in the final paper.

See attached email to the MMS editor in **Appendix C** of this correspondence.

Furthermore, we addressed each one of Dr. Goodman's September 2008 criticisms directly with the MMS Editor, who in addition to reviewing them himself, passed them on to the Associate Editor of MMS and the two original peer reviewers. Thus, the notion that we cherry-picked data or misled the reviewers in any way is incorrect. In fact, we pointed the reviewers and editor to the DOI Inspector General report. The MMS editor also corresponded directly with the NRC and The California Department of Fish and

Game. We also offered to the MMS Editors our raw data and NPS pinniped database so they could conclude for themselves. Ex 5 of Dr. Goodman's allegations Ex 5

Dr. Goodman also Ex 5 alleges that by our performing the correlations without some of the disturbances to show their robustness to sample size, we are acknowledging that these disturbances are false. This is incorrect. After discussion with the MMS editor, we chose to include this statement (quoted above) to show the robustness of the analysis when several disturbances were omitted. Goodman had previously Ex 5 disputed only the NPS Trip Report of April 26, 2007 conducted by S. Allen. To demonstrate the robustness of the analyses to smaller sample sizes, we removed several disturbances, including the April 26 survey.

#### 4. Inclusion of the 1996-1999, and 2008 disturbance data in the second paper.

Dr. Goodman states Ex 5

Ex 5

We incorporated more years at the urging of Dr. Goodman Ex 5 comments to the NRC and MMS in September of 2008. There is no cherry-picking as we included ALL appropriate data. The 1996-1999 data were not in the previous database upon preparation of the first version of the MMS paper, but we were able to compile and access it for the revised second submission. Similarly, we had not looked closely at the 2008 disturbance data prior to the first submission, but revisited it for the revision.

On page 2 of his report, Dr. Goodman asserts that we falsified disturbance records in 1996 to improve our statistical results and create a more dramatic graph.

The NPS pinniped database indicates four disturbances in 1996. Due to Dr. Goodman's query, we have realized that we accidentally included two *potential* disturbances from 1996 in our calculations since they had a "disturbance = "Yes" entered in the database. In fact, there were 4 oyster related disturbances and 2 oyster related *possible* disturbances. We regret this error but it nonetheless does not alter the statistics or conclusions in any way. We will inform the Editor of MMS of our error and seek his guidance on whether a correction is warranted.

Nevertheless, the removal of Ex 5 two disturbances in 1996 does not change any conclusions or patterns described in the paper (see Appendix D). 1996 is still the year with highest rate of disturbance, and the significance and correlation of the oyster harvest-disturbance rate remain exactly the same since we used ranks tests for the analysis. See Appendix D for original and new plots. Thus, Dr. Goodman's allegation that we purposely increased the number of disturbances in 1996 to "help" our statistics or create a more dramatic graph is inconsistent with the facts and the analysis Ex 5

We assume Dr. Goodman only counts two disturbances in 1996 (rather than four) because he characterizes two of the motorboat related disturbances as non-oyster related while we consider these to be oyster related. As is well known, only oyster company motor boats are allowed in the Estero without special permission and this closure has been in effect since the early 1990s. Goodman's statement that "*many fishing and recreational motorboats enter the estero*" on page 17 of his letter is not supported by park records including law enforcement case reports, harbor seal monitoring field notes and park staff observations.

Finally, cherry-picking is alleged because we did not analyze other disturbance sources in the estero (other than to note the relative frequency of human related disturbance is higher in the lower estero because *some* of the lower estero haul-out sites are attached to the mainland). On November 12, we provided the NRC with a justification for solely analyzing the mariculture related disturbances and we explained in the MMS paper: See Appendix E.

**5. Allegation that NPS did not follow stated QA/QC protocols:**

Dr. Goodman states on page 12 that;

*"April 29, 2007: Disturbance Survey Violated NPS Protocols."*

Dr. Goodman makes several assumptions regarding NPS protocols which are incorrect.

\*The MMS paper clearly states that *count* data were filtered for date, observer experience, tide and weather. However, the disturbance data were not subject to these criteria. Disturbances can be recorded at any tide, weather, or observer experience level.

Ex 5

In addition, for the purposes of the Becker et al. paper, we limited the count data used to surveys collected on days with a 2.0 ft tide or less. For our analyses, we extracted the maximum count per survey, and we checked to ensure that the count occurred at a reasonable time in relation to the low tide time.

—Dr. Goodman appears to have misunderstood NPS procedures for reviewing harbor seal data prior to analysis. All data that we receive from volunteers is entered into the database and prior to analyzing and reporting the data, we review the *count* data to see if any of the surveys were of potentially poor quality and should be discarded from our

DRAFT Goodman Response Feb 5, 2009 FOR INTERNAL REVIEW ONLY – PRE DECISIONAL

analysis. Records are never discarded from the database itself, which remain important NPS records.

Each survey is evaluated and assigned a "HighQualityCount?" value of "yes" or "no". A survey may be of poor quality and assigned a value of "no" for the following reasons:

- poor visibility
  - not all subsites were surveyed
  - poor observer quality of *all* survey participants
  - other comments noted on the datasheet, especially in regards to weather conditions
- Dr. Goodman asserted that the volunteers (Mr. and Mrs. Leites) who surveyed on April 29, 2007 did not have more than one year of survey experience and that their first survey was on March 24, 2007 (Page xx). This is in fact the date of their first survey in *Drakes Estero*. The Leites, however, began volunteering with our program in April of 2006, spending most of their time at Bolinas Lagoon and Duxbury Reef. In addition, March 24 was not their first survey of the 2007 monitoring season. The databases that store these surveys were delivered to Dr. Goodman in his FOIA requests dated August 2007 and January 2008. In short, the Leites did meet our criteria of having at least one year of prior experience in our program before including their data for analysis.
  - A key point that Dr. Goodman misrepresents is that although we review each disturbance record in the database for accuracy against the paper data sheet, we do not enforce the additional, above QA/QC procedures on the disturbance data. This is clearly outlined in methods section of the MMS paper. Ex 5  
Ex 5  
~~National Seashore.~~ We have confidence that our first year observers, all of which whom must attend our trainings, have the ability to observe, for example, a motorboat flushing harbor seals off a sandbar. Furthermore, it is irrelevant whether or not that disturbance occurs in poor weather conditions or at a high or low tide.

**6. Statement that the MMS paper title is incorrect.**

Dr. Goodman states on page 25 that

*"Becker cherry-picked the 1996 data, but never changed their title or abstract, which still begins with 1997."*

The paper clearly models data only from 1997-2007, as the title describes. As is clearly explained in the paper, we include disturbance (but not count) data from 1996 and 2008. This data is not modeled but only used to report disturbance patterns. Count data were not complete enough to pass QA/QC protocols for 1996, and we did not model 2008 count

Ex 5

data since it was after reaffirmed guidelines that the oyster company avoid seal areas during the breeding season. In fact, eliminating disturbance data that we had available (e.g., 1996 and 2008) would actually be cherry-picking. It is difficult to see how including all available data is cherry picking.

Ex 5

#### **7. Application of Spearman ranks test to test for correlation between disturbance rate and oyster harvest:**

Dr. Goodman states on page 19 that:

"Becker told us that *"This correlation is highly robust to sample size."* As framed by Becker, this may be technically correct given that he cherry-picked both the data he included and the data that he excluded, but it is highly misleading. It is not because the data are so strong, but rather because this kind of correlation (in this case using 1-tailed Spearman ranks test) is a weak test, and can be driven by a single anecdotal observation."

Contrary to Dr. Goodman's assertion, the S-plus statistical software user's manual indicates that:

"Because both Kendall's and Spearman's methods are based on ranks, they are not so sensitive to outliers and non normality as the standard Pearson estimate." (Insightful 2003).

Furthermore, in the MMS paper, our demonstration of the removal of several disturbances with continuing significance proves that the test is not succumbing to the effects of a "single anecdotal observation". Other correlation tests show similar results. Specifically, Pearson correlations (although not appropriate) and Kendall's Tau (which is an appropriate test).

Dr. Goodman also indicates that we must have gone back to the 1996 data only to get a stronger correlation (Page 22). However, if only considering the disturbance rate from 2000 – 2008, the P value is similar ( $P < 0.03$ ), and the Spearman correlation is actually higher ( $r_s = 0.69$ ) than the full time series. Thus, there is no basis for the allegation that we cherry picked data (omission or commission) to improve our statistical results.

In conclusion, we note that in previous iterations of his statements, Dr. Goodman criticized our statistical modeling techniques, which are all standard professional practice. His critiques were closely examined by editors and peer reviewers at MMS and flatly rejected. He now primarily focuses on data handling and alleges we falsified data that were independently collected by several different volunteers and NPS staff. We find Dr. Goodman's statements misguided as evidenced by the conclusions by the independent groups the Marine Mammal Science and the DOI Inspector General that there was no evidence of scientific misconduct. Separately, the National Research Council refused to consider his allegations of scientific misconduct. Lastly, during the preparation of the MMS paper and NRC presentations, the database we were working with was available to several different groups, including Dr. Goodman and the NRC. We also offered it to the editor of Marine Mammal Science. Thus, there is no basis for the allegation that we are manipulating data; the raw data are available for these groups to see and arrive at their

DRAFT Goodman Response Feb 5, 2009 FOR INTERNAL REVIEW ONLY – PRE DECISIONAL

own conclusions about our analyses and interpretation. Nevertheless, we treat with utmost seriousness Dr. Goodman's persistent allegations of scientific misconduct.

We stand by our procedures and methodology, which are scientifically sound. While we welcome critiques of our scientific studies, the pattern of Dr. Goodman's attacks is concerning insofar as it suggests that his primary goal is not to improve the scientific methodology used by the Park, but rather to cast doubt on the credibility of particular individuals. We value the hard work of the park volunteers, and are saddened to see their veracity questioned in so untoward a manner. We will continue to defend the integrity of our scientific studies and programs.

INSIGHTFUL. 2003. S-PLUS 6 for Windows Guide to Statistics, Volume 1, Insightful Corporation, Seattle, WA.

JOHNSON, A., AND A. ACEVEDO-GUTIERREZ. 2007. Regulation compliance by vessels and disturbance of harbor seals (*Phoca vitulina*). *Canadian Journal of Zoology* 85:290294.

SURYAN R. M., AND J. T. HARVEY. 1999. Variability in reactions of Pacific harbor seals, *Phoca vitulina richardii*, to disturbance. *Fisheries Bulletin* 97:332–339.



Sarah Allen/PORE/NPS  
02/06/2009 07:07 AM

To: Ben Becker/PORE/NPS@NPS  
cc: sarah\_allen@nps.gov, dave\_press@nps.gov  
bcc:

Subject: Re: draft

History:  This message has been replied to.

here is my recent update - the highlighted areas need to be completed by dave, you or myself - I think you are finished and it is just dave and I that have to put in page numbers, images etc,

you might look at it one more time with a clear hear?

Thanks



Goodman\_response\_Feb\_2009-DRAFT\_SA\_DG\_BB\_edit.doc

**NPS Response to Goodman 01/18/2009 Letter to NRC.**

This document addresses the allegations and criticisms put forth in a January 18, 2009 letter from Dr. Corey Goodman to the National Research Council (NRC). Because the letter addresses many themes and frequently revisits themes in a non-linear fashion, we have reorganized what we believe are the salient points and address them in turn below. Several of the short responses below are supported by additional referenced documents that are attached in appendices.

Ben Becker  
David Press  
Sarah Allen

**1. Allegation that NPS falsified data on harbor seal disturbance events.**

Dr. Goodman states on page 2 and on numerous other pages in his letter to the NRC that

*"Simply said, NPS presented you with false science. It is physically impossible for the disturbance events to have taken place as described."*

The allegation of falsified data is based on several incorrect assumptions. Dr. Goodman assumes that the seals do not use the site when the sandbars are submerged, that seals are not disturbed by sources > 300 ft away, that DBOC does not operate on Sundays, and that several volunteers and NPS staff separately **Ex 5** data on disturbances on several days of field observations. There is no supporting evidence for these allegations and we refute them with actual data.

- Assumption that seals do not use submerged sandbars. (Page xx) **Ex 5**  
**Ex 5**  
**Ex 5** Seals (especially mothers with pups) regularly hover over sandbars in Drakes Estero before they are exposed by rising or falling tides, and this is a common behavior of harbor seals. Furthermore, the disturbances documented by NPS were recorded during the *breeding* season when females and pups are commonly on these sandbars. Seals use these sandbars less frequently during January when DBOC conducted their "experiment" that Goodman cited in his letter.
- Assumption that seals are not disturbed beyond the 300 foot Protective Zone (Page xx)- Dr. Goodman states that DBOC agreed to a 300 foot protective zone, and therefore, implies that seals could not be disturbed at distances greater than 300 ft. The National Marine Fisheries Service generally recommends a distance of 300 ft (100m) for not disturbing marine mammals; however, there is ample information in the published literature that documents harbor seals being disturbed at greater distances. Johnson and Gutierrez (2007) document power boats disturbing harbor seals in Washington at an average distance of 625 ft

DRAFT Goodman Response Feb 5, 2009 FOR INTERNAL REVIEW ONLY – PRE DECISIONAL

(190.5 m) and as far as 1217 ft (371 m). Suryan and Harvey (1999) in another study in Washington document that 25% of disturbances to harbor seals occurred at a distance of 656-984 ft (200-300 m). Aircraft at high altitude also disturb harbor seals depending upon the amount of noise generated by the aircraft. It is not unreasonable that harbor seals in Drakes Estero were disturbed by boat noise generated at distances greater than 300 ft.

- Assumption that DBOC does not operate on Sundays. Dr. Goodman states that DBOC does not normally operate on Sundays (Page xx). We do not know at what frequency that DBOC boats operate on weekends; however, the DOI OIG investigation reports that DBOC personnel did not log in boat use when they used the boat in Drakes Estero for recreational fishing (see page xx of the DOI-OIG report). In addition, NPS has time stamped images of a DBOC boat present on Drakes Estero on March 23, 2008, a Sunday (see Appendix XX).
- Assumption of improbability of disturbances (Page xx). Dr. Goodman discounts the two April 29 disturbance events partly because they occurred so close together (50 minutes) that the boat would not have had enough time to return to the dock, pick up more bags, and then travel back to sandbar UEN. In fact, the volunteers never stated in their field notes that the boat returned to the dock and then came back between the disturbance events. Why Dr. Goodman made this assumption, and subsequently discounted the events as logistically impossible is unclear.
- Assumption that there are no other DBOC disturbance records (Page xx). Dr. Goodman incorrectly states that as of April 29, 2007 there were no data documenting disturbances to harbor seals by DBOC. In fact, the database contains unambiguous records from April 26, 2007 documenting disturbances at multiple sites. An additional disturbance occurred the previous year on May 6, 2006.
- Assumption that count occurred on April 29 at 3:15. Dr. Goodman used a different start time at which the volunteers conducted their full count of Drakes Estero from what is in the pinniped database. The database and datasheet clearly document that the data were collected at 2:15 PM. However, apparently based on a note on the photocopied datasheet Dr. Goodman assumes that the data were collected at 3:15 PM in his letter (Page 7).

*"Based upon the tide chart with appropriate lag correction, it would have been difficult if not impossible for them to count seals on UEN and OB until 15:15. If the tide was too high and they couldn't count the seals on UEN or OB until 15:15, then how could they record a disturbance at 12:50?"*

The field data sheet from the survey on April 29, 2007 reads, "poor tide – counted when could – had to leave at 3:15." Dr. Goodman mistakenly concluded that the volunteers could not count the harbor seals until 3:15 PM, which falsely supported his claims that earlier disturbances could not have occurred.

2. Allegation that disturbance data Ex 5

Dr. Goodman states on page 16 in his letter to the NRC stated that:

*“The 2003 disturbance data changed from Becker I to Becker II with no comment about why these data were missed in Becker I or how they were found for Becker II.”*

During preparation for the first Marine Mammal Science (MMS) journal submission, Becker inadvertently overlooked the 2003 disturbances. The datum (one disturbance) was in the dataset that D. Press, the NPS data manager, provided to Becker preparing the first MMS manuscript. While preparing for the NRC presentation on September 4, 2008, Becker realized his error of omission, and *therefore, included an asterisk by the 2003 data with “possible disturbance” on the NRC presentation (see Appendix B)*. Then, after the NRC meeting and when revising the MMS paper in late September, 2008, Becker and D. Press found an additional disturbance event in the comments section of the data sheet for that survey day. In sum, there were two actual disturbances in 2003. Becker incorporated both into the final paper which he shared with NRC as soon as it was accepted by the editor of MMS Ex 5

3. Allegation that NPS withheld information from the MMS editor.

Dr. Goodman states on page 19 that

*“In his (Becker’s) statement in the results section of his paper on lines 319-329, he told us one important fact that he did not tell the Editor in his cover letter when he wrote:*

*“For example, there was still a significant positive correlation ... of disturbance rate with oyster harvest even when removing the 2006 disturbance, four of the 2007 disturbances (including two disturbances on one day in 2007 that the mariculture company challenged), and four of the 1996 disturbances (nine total) from the analysis”*”

Goodman’s allegation is incorrect. We sent the editor this sample paragraph before final re-acceptance of the paper. The editor approved, and it was included in the final paper. See attached email in **Appendix C** of this correspondence.

Furthermore, we addressed each one of Dr. Goodman’s September 2008 criticisms directly with the MMS Editor, who in addition to reviewing them himself, passed them on to the Associate Editor of MMS and the two original peer reviewers. Thus, the notion that we cherry-picked data or misled the reviewers in any way is incorrect. In fact, we pointed the reviewers and editor to the DOI Inspector General report. The MMS editor also corresponded directly with the NRC and The California Department of Fish and Game. We also offered to the MMS Editors our raw data and NPS pinniped database, so

they could conclude for themselves Ex 5 of Dr. Goodman's allegations Ex 5 Ex 5

Dr. Goodman also suggests that by our performing the correlations without some of the disturbances to show their robustness to sample size, we are acknowledging that these disturbances are false. This is incorrect. After discussion with the MMS editor, we chose to include this statement (quoted above) Ex 5

Ex 5 Goodman had previously disputed only the NPS Trip Report of April 26, 2007 conducted by S. Allen. To demonstrate the robustness of the analyses to small sample size, we removed several disturbances, including the April 26 survey.

#### 4. Inclusion of the 1996-1999, and 2008 disturbance data in the second paper.

Dr. Goodman states Ex 5

Ex 5

We incorporated more years at the urging of Dr. Goodman Ex 5 There is no cherry-picking as we included ALL appropriate data. [The 1996-1999 data were not in the previous database upon preparation of the first version of the MMS paper, but we were able to compile and access it for the revised second submission Ex 5

On page 2 of his report, Dr. Goodman asserts that we falsified disturbance records in 1996 to improve our statistical results and create a more dramatic graph.

The NPS pinniped database indicates **four** disturbances in 1996. Due to Dr. Goodman's query, we have realized that we accidentally included two *potential* disturbances from 1996 in our calculations since they had a "disturbance = "Yes" entered in the database. In fact, there were 4 oyster related disturbances and 2 oyster related *possible* disturbances. We regret this error but it nonetheless does not alter the statistics or conclusions in any way. We will inform the Editor of MMS of our error and seek his guidance on whether a correction is warranted.

Nevertheless, the removal of Ex 5 disturbance in 1996 does not change any conclusions or patterns described in the paper (see Appendix D). 1996 is still the year with highest rate of disturbance, and the significance and correlation of the oyster harvest-disturbance rate remain exactly the same since we used ranks tests for the analysis. See Appendix D for original and new plots. Thus, Dr. Goodman's allegation that we purposely increased the number of disturbances in 1996 to "help" our statistics or create a more dramatic graph is inconsistent with the facts and the data.

We assume Dr. Goodman only counts two disturbances in 1996 (rather than four) because he characterizes two of the motorboat related disturbances as non-oyster related while we consider these to be oyster related. As is well known, only oyster company

motor boats are allowed in the Estero without special permission and this closure has been in effect since the early 1990s. Goodman's statement that "*many fishing and recreational motorboats enter the estero*" on page 17 of his letter is not supported by park records including law enforcement case reports, harbor seal monitoring field notes and park staff observations.

Finally, cherry-picking is alleged because we did not analyze other disturbance sources in the estero (other than to note the relative frequency of human related disturbance is higher in the lower estero because the lower estero haul-out sites are attached to the mainland). On November 12, we provided the NRC with a justification for solely analyzing the mariculture related disturbances and we explained in the MMS paper: See Appendix E.

**5. Allegation that NPS did not follow stated QA/QC protocols:**

Dr. Goodman states on page 12 that:

*"April 29, 2007: Disturbance Survey Violated NPS Protocols."*

Dr. Goodman makes several assumptions regarding NPS protocols which are incorrect.

- The MMS paper clearly states that *count* data were filtered for date, observer experience, tide and weather. However, the disturbance data were not subject to these criteria. Disturbances can be recorded at any tide, weather, or observer experience level.

Ex 5



In addition, for the purposes of the Becker et al. paper, we limited the count data used to surveys collected on days with a 2.0 ft tide or less. For our analyses, we extracted the maximum count per survey, and we checked to ensure that the count occurred at a reasonable time in relation to the low tide time.

- Dr. Goodman appears to have misunderstood NPS procedures for reviewing harbor seal data prior to analysis. All data that we receive from volunteers is entered into the database and prior to analyzing and reporting the data, we review the *count* data to see if any of the surveys were of potentially poor quality and should be discarded from our analysis. Records are never discarded from the database itself, which remain important NPS records.

Each survey is evaluated and assigned a "HighQualityCount?" value of "yes" or

Ex 5



"no". A survey may be of poor quality and assigned a value of "no" for the following reasons:

- poor visibility
  - not all subsites were surveyed
  - poor observer quality of *all* survey participants
  - other comments noted on the datasheet, especially in regards to weather conditions
- Dr. Goodman asserted that the volunteers (Mr. and Mrs. Leites) who surveyed on April 29, 2007 did not have more than one year of survey experience and that their first survey was on March 24, 2007 (Page xx). This is in fact the date of their first survey in *Drakes Estero*. The Leites, however, began volunteering with our program in April of 2006, spending most of their time at Bolinas Lagoon and Duxbury Reef. In addition, March 24 was not their first survey of the 2007 monitoring season. The databases that store these surveys were delivered to Dr. Goodman in his FOIA requests dated August 2007 and January 2008. In short, the Leites did meet our criteria of having at least one year of prior experience in our program before including their data for analysis.
  - A key point that Dr. Goodman misrepresents is that although we review each disturbance record in the database for accuracy against the paper data sheet, we do not enforce the additional, above QA/QC procedures on the disturbance data.  
Ex 5  
Ex 5 We have confidence that our first year observers, all of ~~which~~ who must attend our trainings, have the ability to observe, for example, a motorboat flushing harbor seals off a sandbar. Furthermore, it is irrelevant whether or not that disturbance occurs in poor weather conditions or at a high or low tide.

#### 6. Statement that the MMS paper title is incorrect.

Dr. Goodman states on page 25 that

*"Becker cherry-picked the 1996 data, but never changed their title or abstract, which still begins with 1997."*

The paper clearly models data only from 1997-2007, as the title describes. As is clearly explained in the paper, we include disturbance (but not *count*) data from 1996 and 2008. This data is not modeled but only used to report disturbance patterns. Count data were not complete enough to pass QA/QC protocols for 1996, and we did not model 2008 data since it was after reaffirmed guidelines that the oyster company avoid seal areas during the breeding season. In fact, eliminating disturbance data that we had available (e.g., 1996 and 2008) would actually be cherry picking. It is difficult to see how including all available data is cherry picking.

Ex 5

Ex 5

## 7. Application of Spearman ranks test to test for correlation between disturbance rate and oyster harvest:

Dr. Goodman states on page 19 that:

"Becker told us that *'This correlation is highly robust to sample size.'* As framed by Becker, this may be technically correct given that he cherry-picked both the data he included and the data that he excluded, but it is highly misleading. It is not because the data are so strong, but rather because this kind of correlation (in this case using 1-tailed Spearman ranks test) is a weak test, and can be driven by a single anecdotal observation."

Contrary to Dr. Goodman's assertion, the S-plus statistical software user's manual indicates that:

"Because both Kendall's and Spearman's methods are based on ranks, they are not so sensitive to outliers and non normality as the standard Pearson estimate." (Insightful 2003)

Dr. Goodman also indicates that we must have gone back to the 1996 data only to get a stronger correlation (Page 22). However, if only considering the disturbance rate from 2000 – 2008, the P value is similar ( $P < 0.03$ ), and the Spearman correlation is actually higher ( $r_s = 0.69$ ) than the full time series. Thus, there is no basis for the allegation that we cherry picked data to improve our statistical results.

In conclusion, we note that in previous iterations of his statements, Dr. Goodman criticized our statistical modeling techniques, which are all standard professional practice. His critiques were closely examined by editors and peer reviewers at MMS and flatly rejected. He now primarily focuses on data handling and alleges we falsified data that were independently collected by several different volunteers and NPS staff. We find Dr. Goodman's statements misguided as evidenced by the conclusions by the independent groups the Marine Mammal Science and the DOI Inspector General that there was no evidence of scientific misconduct. Separately, the National Research Council refused to consider his allegations of scientific misconduct. Lastly, during the preparation of the MMS paper and NRC presentations, the database we were working with was available to several different groups, including Dr. Goodman and the NRC. We also offered it to the editor of Marine Mammal Science. Thus, there is no basis for the allegation that we are manipulating data; the raw data are available for these groups to see and arrive at their own conclusions about our analyses and interpretation. Nevertheless, we treat with utmost seriousness Dr. Goodman's persistent allegations of scientific misconduct.

We stand by our procedures and methodology, which are scientifically sound. While we welcome critiques of our scientific studies, the pattern of Dr. Goodman's attacks is concerning insofar as it suggests that his primary goal is not to improve the scientific methodology used by the Park, but rather to cast doubt on the credibility of particular individuals. We value the hard work of the park volunteers, and are saddened to see their veracity questioned in so untoward a manner. We will continue to defend the integrity of our scientific studies and programs.

DRAFT Goodman Response Feb 5, 2009 FOR INTERNAL REVIEW ONLY – PRE DECISIONAL

INSIGHTFUL. 2003. S-PLUS 6 for Windows Guide to Statistics, Volume 1. Insightful Corporation, Seattle, WA.

JOHNSON, A., AND A. ACEVEDO-GUTIERREZ. 2007. Regulation compliance by vessels and disturbance of harbor seals (*Phoca vitulina*). *Canadian Journal of Zoology* 85:290294.

SURYAN R. M., AND J. T. HARVEY. 1999. Variability in reactions of Pacific harbor seals, *Phoca vitulina richardii*, to disturbance. *Fisheries Bulletin* 97:332–339.



Sarah Allen/PORE/NPS  
02/06/2009 05:57 AM

To: Ben Becker/PORE/NPS@NPS  
cc:  
bcc:  
Subject: Re: draft

Hi Ben:

Thanks for working on this last night after already working all day on it!

I do want to connect with you on a few points this morning. I would like to talk to you around 8:30-9 at the office - would that work for your schedule?

Thanks

Sarah

Ben Becker/PORE/NPS

02/06/2009 12:18 AM

To: Sarah Allen/PORE/NPS@NPS

cc

bcc

Subject: draft 

Hi Sarah,

I made small changes here and there and left notes where I made bigger changes for you to look at. Let me know what else I can do.

thanks,

-Ben



Goodman\_response\_Feb\_2009-DRAFT\_SA-8B-edit.doc

Ben Becker, Ph.D.  
Director and Marine Ecologist  
Pacific Coast Science and Learning Center  
Point Reyes National Seashore  
1 Bear Valley Road  
Point Reyes Station, CA 94956

tel: 415-464-5247  
fax: 415-868-1202  
ben\_becker@nps.gov  
<http://home.nps.gov/pore/parkmgmt/pcslc.htm>

The Pacific Coast Science and Learning Center is one of 21 Research Learning Centers at National Parks across the country working to increase the effectiveness and communication of research and science through:

- Facilitating the use of parks for scientific inquiry
- Supporting science-informed decision making
- Communicating relevance and providing access to research knowledge
- Promoting resource stewardship through partnerships

DRAFT Goodman Response Feb 5, 2009 - FOR INTERNAL REVIEW ONLY – PRE DECISIONAL

**NPS Response to Goodman 01/18/2009 Letter to NRC.**

Prepared by Ben Becker, Dave Press, and Sarah Allen

This document addresses the allegations and criticisms put forth in a January 18, 2009 letter from Dr. Corey Goodman to the National Research Council (NRC). Because his letter addresses many themes and frequently revisits them, we have reorganized what we believe are the salient points and address them in turn below. Each short response below is supported by additional referenced documents that are attached.

**1. Allegations that NPS falsified data on harbor seal disturbance events.**

Dr. Goodman states on Page 2 in his letter to the NRC that:

*"Simply said, NPS presented you with false science. It is physically impossible for the disturbance events to have taken place as described..."*

The allegation of falsified data is based on several incorrect assumptions. Dr. Goodman assumes that the seals do not use the site when the sandbars are submerged, that seals are not disturbed by sources > 300 ft away, and that several volunteers and NPS staff separately **Ex 5** data on disturbances on several days of field observations. There is no supporting evidence for these allegations and we refute them with actual data.

**Ex 5**

**Ex 5** Seals (especially mothers with pups) regularly hover over sandbars in Drakes Estero before they are exposed by rising or falling tides, and this is a common behavior of harbor seals elsewhere. Furthermore, the disturbances documented by NPS were recorded during the *breeding* season when females and pups are commonly on these sandbars. Seals use these sandbars less frequently during the January "experiment" that Goodman cited in his letter.

Improbability of Disturbances - Dr. Goodman discounts the two April 29 disturbance events partly because they occurred so close together (50 minutes) that the boat would not have had enough time to return to the dock, pick up more bags, and then travel back to sandbar UEN. In fact, the volunteers never stated in their field notes that the boat returned to the dock and then came back between the disturbance events. Why Dr. Goodman made this assumption, and subsequently discounted the events as logistically impossible, is difficult to understand.

DBOC Disturbance Records - Dr. Goodman incorrectly states that as of April 29, 2007 there were no data documenting disturbances to harbor seals by DBOC. In fact, the database contains unambiguous records from April 26, 2007 documenting disturbances at multiple sites. An additional disturbance occurred the previous year on May 6, 2006.

300 foot Protective Zone - Dr. Goodman states that DBOC agreed to a 300 foot protective zone, and therefore, implies that seals could not be disturbed at distances greater than 300 ft. The National Marine Fisheries Service generally recommends a distance of 300 ft (100m) for not disturbing marine mammals; however, there is ample

information in the published literature that documents harbor seals being disturbed at greater distances. Johnson and Gutierrez (2007) document power boats disturbing harbor seals in Washington at an average distance of 625 ft (190.5 m) and as far as 1217 ft (371 m). Suryan and Harvey (1999) in another study in Washington document that 25% of disturbances to harbor seals occurred at a distance of 656-984 ft (200-300 m). Aircraft at high altitude also disturb harbor seals depending upon the amount of noise generated by the aircraft. It is not unreasonable that harbor seals in Drakes Estero were disturbed by boat noise generated at distances greater than 300 ft.

Time of April 29 Count - Dr. Goodman used a different start time at which the volunteers conducted their full count of Drakes Estero from the data in the pinniped database. The database and datasheet clearly document that the data was collected at 2:15 PM. However, apparently based on a note on the photocopied datasheet Dr. Goodman assumes that the data were collected at 3:15 PM in his letter on page 7.

*"Based upon the tide chart with appropriate lag correction, it would have been difficult if not impossible for them to count seals on UEN and OB until 15:15. If the tide was too high and they couldn't count the seals on UEN or OB until 15:15, then how could they record a disturbance at 12:50?"*

The field data sheet from the survey on April 29, 2007 reads, "poor tide – counted when could – had to leave at 3:15." Dr. Goodman mistakenly concluded that the volunteers could not count the harbor seals until 3:15 PM, which falsely supported his claims that earlier disturbances could not have occurred.

## 2. Allegation that disturbance data were fabricated:

Dr. Goodman states on page 16 in his letter to the NRC stated that:

*"The 2003 disturbance data changed from Becker I to Becker II with no comment about why these data were missed in Becker I or how they were found for Becker II."*

During preparation for the first Marine Mammal Science (MMS) journal submission, Becker inadvertently overlooked the 2003 disturbances. The datum (one disturbance) was in the dataset that D. Press, the NPS data manager, provided to Becker preparing the first MMS manuscript. While preparing for the NRC presentation on September 4, 2008, Becker realized his error of omission, and *therefore, included an asterisk by the 2003 data with "possible disturbance" on the NRC presentation (see Appendix B)*. Then, after the NRC meeting and when revising the MMS paper in late September, 2008, Becker and D. Press found an additional disturbance in the comments section of the data sheet for that survey day. In sum, there were two actual disturbances in 2003. Becker incorporated both into the final paper which he shared with NRC as soon as it was accepted by the editor of MMS. Ex 5

## 3. Allegation that NPS withheld information from the MMS editor.

Dr. Goodman states on page 19 that:

*"In his (Becker's) statement in the results section of his paper on lines 319-329, he told us one important fact that he did not tell the Editor in his cover letter when he wrote:*

*"For example, there was still a significant positive correlation ... of disturbance rate with oyster harvest even when removing the 2006 disturbance, four of the 2007 disturbances (including two disturbances on one day in 2007 that the mariculture company challenged), and four of the 1996 disturbances (nine total) from the analysis"*

Goodman's allegation is incorrect. We sent the editor this sample paragraph before final re-acceptance of the paper. The editor approved, and it was included in the final paper. See attached email in **Appendix C** of this correspondence.

Furthermore, we addressed each one of Dr. Goodman's September 2008 criticisms directly with the MMS Editor, who in addition to reviewing them himself, passed them on to the Associate Editor of MMS and the two original peer reviewers. Thus, the notion that we cherry-picked data or misled the reviewers in any way is incorrect. In fact, we pointed the reviewers and editor to the DOI Inspector General report. The MMS editor also corresponded directly with the National Research Council and The California Department of Fish and Game. We also offered to the MMS Editors our raw data and NPS pinniped database, so they could conclude for themselves. Ex 5 Dr. Goodman's allegations, Ex 5

Dr. Goodman also suggests that by our performing the correlations without some of the disturbances to show their robustness to sample size, we are acknowledging that these disturbances are false. This is incorrect. After discussion with the MMS editor, we chose to include this statement (quoted above). Ex 5  
Ex 5 Goodman had previously disputed only the NPS Trip Report of April 26, 2007 conducted by S. Allen. To demonstrate the robustness of the analyses to small sample size, we removed several disturbances, including the April 26 survey.

#### 4. Inclusion of the 1996-1999, and 2008 disturbance data in the second paper.

Dr. Goodman states: Ex 5

Ex 5

Ex 5

We incorporated more years at the urging of Dr. Goodman himself. There is no cherry-picking as we included all appropriate data. The 1996-1999 data were not in the previous

Ex 5

DRAFT Goodman Response Feb 5, 2009 - FOR INTERNAL REVIEW ONLY – PRE DECISIONAL

database upon preparation of the first version of the MMS paper, but we were able to compile and access it for the revised second submission.

On page 2 of his report, Dr. Goodman asserts that we falsified disturbance records in 1996 to improve our statistical results and create a more dramatic graph.

The NPS pinned database indicates four disturbances in 1996. Due to Dr. Goodman's query, we have realized that we accidentally included two *potential* disturbances from 1996 in our calculations since they had a "disturbance = "Yes" entered in the database. Ex 5

Ex 5 there were in fact 4 oyster related disturbances and 2 oyster related *possible* disturbances. We regret this error but it nonetheless does not alter the statistics or conclusions in any way. We will inform the Editor of MMS of our error and seek his guidance on whether a correction is warranted.

Nevertheless, the removal of two disturbances in 1996 does not change any conclusions or patterns described in the paper (see **Appendix D**). 1996 is still the year with highest rate of disturbance, and the significance and correlation of the oyster harvest-disturbance rate remains exactly the same since we used ranks tests for the analysis. See **Appendix D** for original and new plots and tests. Thus, Dr. Goodman's allegation that we purposely increased the number of disturbances in 1996 to "help" our statistics or create a more dramatic graph is inconsistent with the facts and the analyses.

We assume Dr. Goodman only counts two disturbances in 1996 (rather than four) because he characterizes two of the motorboat related disturbances as non-oyster related while we consider these to be oyster related. As is well known, only oyster company motor boats are allowed in the Estero without special permission and this closure has been in effect since the early 1990s. Goodman's statement that "*many fishing and recreational motorboats enter the estero*" on page 17 of his letter is not supported by park records including law enforcement case reports, harbor seal monitoring field notes and park staff observations.

Finally, cherry-picking is alleged because we did not analyze other disturbance sources in the estero (other than to note the relative frequency of human related disturbance is higher in the lower estero because the lower estero haul-out sites are attached to the mainland). On November 12, we provided the NRC with a detailed justification for solely analyzing the mariculture related disturbances. See **Appendix E**.

#### **5. Allegation that NPS did not follow stated QA/QC protocols:**

Dr. Goodman states on page 12 that:

*"April 29, 2007: Disturbance Survey Violated NPS Protocols."*

Dr. Goodman makes several assumptions regarding NPS protocols which are incorrect.

DRAFT Goodman Response Feb 5, 2009 - FOR INTERNAL REVIEW ONLY - PRE DECISIONAL

The MMS paper clearly states that *count* data were filtered for date, observer experience, tide and weather. However, the disturbance data were not subject to these criteria. Disturbances can be recorded at any tide, weather, or observer experience level.

Ex 5



In addition, for the purposes of the Becker et al. paper, we limited the count data used to surveys collected on days with a 2.0 ft tide or less. For our analyses, we extracted the maximum count per survey, and we checked to ensure that the count occurred at a reasonable time in relation to the low tide time.

Dr. Goodman appears to have misunderstood NPS procedures for reviewing harbor seal data prior to analysis. All data that we receive from volunteers is entered into the database, and prior to analyzing and reporting the data, we review the *count* data to see if any of the surveys were of potentially poor quality and should be discarded from our analysis. Records are never discarded from the database itself, which remain important NPS records.

Each survey is evaluated and assigned a "HighQualityCount?" value of "yes" or "no". A survey may be of poor quality and assigned a value of "no" for the following reasons:

- poor visibility
- not all subsites were surveyed
- poor observer quality of *all* survey participants
- other comments noted on the datasheet, especially in regards to weather conditions

The Volunteers' Experience - Dr. Goodman asserted that the volunteers (Mr. and Mrs. Leites) who surveyed on April 29, 2007 did not have more than one year of survey experience and that their first survey was on March 24, 2007. This is in fact the date of their first survey in *Drakes Estero*. The Leites, however, began volunteering with our program in April of 2006, spending most of their time at Bolinas Lagoon and Duxbury Reef. In addition, March 24 was not their first survey of the 2007 monitoring season. The databases that store these surveys were delivered to Dr. Goodman in his FOIA requests dated August 2007 and January 2008. In short, the Leites did meet our criteria of having at least one year of prior experience in our program before including their data for analysis.

A key point that Dr. Goodman misrepresents is that although we review each disturbance record in the database for accuracy against the paper data sheet, we do not enforce the

Additional, above QA/QC procedures on the disturbance data.

Ex 5 Ex 5

We have confidence that our first year observers, all of which must attend our trainings, have the ability to observe, for example, a motorboat flushing harbor seals off a sandbar. Furthermore, it is irrelevant whether or not that disturbance occurs in poor weather conditions or at a high or low tide.

Ex 5 the MMS paper title is incorrect.

Dr. Goodman states on page 25 that

*"Becker cherry-picked the 1996 data, but never changed their title or abstract, which still begins with 1997."*

The paper clearly models data only from 1997-2007, as the title describes. As is clearly explained in the paper, we include disturbance (but not *count*) data from 1996 and 2008. This data is not modeled but only used to report disturbance patterns. Count data were not complete enough to pass QA/QC protocols for 1996, and we did not model 2008 data since it was after reaffirmed guidelines that the oyster company avoid seal areas during the breeding season. In fact, eliminating disturbance data that we had available (e.g., 1996 and 2008) would actually be cherry picking. It is difficult to see how including all available data is cherry picking.

#### 7. Application of Spearman ranks test to test for correlation between disturbance rate and oyster harvest:

Dr. Goodman states on page 19 that:

*"Becker told us that "This correlation is highly robust to sample size." As framed by Becker, this may be technically correct given that he cherry-picked both the data he included and the data that he excluded, but it is highly misleading. It is not because the data are so strong, but rather because this kind of correlation (in this case using 1-tailed Spearman ranks test) is a weak test, and can be driven by a single anecdotal observation."*

Contrary to Dr. Goodman's assertion, the S-plus statistical software user's manual indicates that:

*"Because both Kendall's and Spearman's methods are based on ranks, they are not so sensitive to outliers and nonnormality as the standard Pearson estimate." (Insightful 2003).*

Dr. Goodman also indicates that we must have gone back to the 1996 data only to get a stronger correlation (P. 22). However, if only considering the disturbance rate from 2000 – 2008, the P value is similar ( $P < 0.03$ ), and the Spearman correlation is actually higher ( $r_s = 0.69$ ) than the full time series. Thus, there is no basis for the allegation that we cherry picked data to improve our statistical results.

DRAFT Goodman Response Feb 5, 2009 - FOR INTERNAL REVIEW ONLY – PRE DECISIONAL

In conclusion, we note that in previous iterations of his statements, Dr. Goodman criticized our statistical modeling techniques, which are all standard professional practice. His critiques were closely examined by editors and peer reviewers at MMS and flatly rejected. He now primarily focuses on data handling and alleges we falsified data that were independently collected by several different volunteers and NPS staff. We find Dr. Goodman's statements misguided as evidenced by the conclusions of the independent groups Marine Mammal Science and the Inspector General that there was no evidence of scientific misconduct. Separately, the National Research Council refused to consider his allegations of scientific misconduct. Nevertheless, we treat with utmost seriousness Dr. Goodman's persistent pattern of attacks on our scientific credibility. Lastly, during the preparation of the MMS paper and NRC presentations, the database we were working with was available to several different groups, including Dr. Goodman and the NRC. We also offered it to the editor of Marine Mammal Science. Thus, there is no basis for the allegation that we are manipulating data; the raw data are available for these groups to see and arrive at their own conclusions about our analyses and interpretation.

We stand by our procedures and methodology, which are scientifically sound. While we welcome critiques of our scientific studies, the pattern of Dr. Goodman's attacks is concerning insofar as it suggests that his primary goal is not to improve the scientific methodology used by the Park, but rather to cast doubt on the credibility of particular individuals. We value the hard work of the Park volunteers, and are saddened to see their veracity questioned in so untoward a manner. We will continue to defend the integrity of our scientific studies and programs.

#### Literature Cited

INSIGHTFUL. 2003. S-PLUS 6 for Windows Guide to Statistics, Volume 1, Insightful Corporation, Seattle, WA.

JOHNSON, A., AND A. ACEVEDO-GUTIERREZ. 2007. Régulation compliance by vessels and disturbance of harbor seals (*Phoca vitulina*). Canadian Journal of Zoology 85:290-294.

SURYAN, R. M., AND J. T. HARVEY. 1999. Variability in reactions of Pacific harbor seals, *Phoca vitulina richardii*, to disturbance. Fisheries Bulletin 97:332-339.



Sarah Allen/PORE/NPS  
02/05/2009 07:37 PM

To Ben Becker/PORE/NPS@NPS  
cc  
bcc  
Subject another paragraph for the end

History: This message has been replied to.

We stand by our procedures and methodology, which are scientifically sound. While we welcome critiques of our scientific studies, the pattern of Dr. Goodman's attacks is concerning insofar as it suggests that his primary goal is not to improve the scientific methodology used by the Park, but rather to cast doubt on the credibility of particular individuals. We value the hard work of the Park volunteers, and are saddened to see their veracity questioned in so untoward a manner. We will continue to defend the integrity of our scientific studies and programs.

---

Sarah G. Allen, Ph.D.  
Senior Science Advisor  
National Park Service  
Point Reyes National Seashore  
One Bear Valley Road  
Point Reyes Station, CA 94956  
Phone 415-464-5187  
Fax 415-464-5182  
sarah\_allen@nps.gov

><(((?>'.ee'...><(((?>...>



Sarah Allen/PORE/NPS  
02/05/2009 06:48 PM

To: Ben Becker/PORE/NPS@NPS  
cc:  
bcc:  
Subject: update

I attach the update with Graber's comments



Goodman\_response\_Feb\_2009-DRAFT\_SAedit.doc

---

Sarah G. Allen, Ph.D.  
Senior Science Advisor  
National Park Service  
Point Reyes National Seashore  
One Bear Valley Road  
Point Reyes Station, CA 94956  
Phone 415-464-5187  
Fax 415-464-5182  
sarah\_allen@nps.gov

><(((0>...><(((0>...

**NPS Response to Goodman 01/18/2009 Letter to NRC.**

This document addresses the allegations and criticisms put forth in a January 18, 2009 letter from Dr. Corey Goodman to the National Research Council (NRC). Because the letter addresses many themes and frequently revisits themes in a non-linear fashion, we have reorganized what we believe are the salient points and address them in turn below. Each short response below is supported by additional referenced documents that are attached.

Ben Becker  
David Press  
Sarah Allen

**1. Allegations that NPS falsified data on harbor seal disturbance events.**

Dr. Goodman states on page 2 in his letter to the NRC dated that

**“Simply said, NPS presented you with false science. It is physically impossible for the disturbance events to have taken place as described...”**

The allegation of falsified data is based on several incorrect assumptions. Dr. Goodman assumes that the seals do not use the site when the sandbars are submerged, that seals are not disturbed by sources > 300 ft away, and that several volunteers and NPS staff separately <sup>Ex 5</sup> data on disturbances on several days of field observations. There is no supporting evidence for these allegation and we refute them with actual data.

- **NPS has time stamped images of seals hauled out at similar falling tides during the 2008 *breeding* season in Drakes Estero.** Seals (especially mothers with pups) regularly hover over sandbars in Drakes Estero before they are exposed by rising or falling tides, and this is a common behavior of harbor seals elsewhere. Furthermore, the disturbances documented by NPS were recorded during the *breeding* season when females and pups are commonly on these sandbars. Seals use these sandbars less frequently during the January “experiment” that Goodman cited in his letter.
- **Improbability of Disturbances -** Dr. Goodman discounts the two April 29 disturbance events partly because they occurred so close together (50 minutes) that the boat would not have had enough time to return to the dock, pick up more bags, and then travel back to sandbar UEN. In fact, the volunteers never stated in their field notes that the boat returned to the dock and then came back between the disturbance events. Why Dr. Goodman made this assumption, and subsequently discounted the events as logistically impossible, <sup>Ex 5</sup>
- **DBOC Disturbance Records -** Dr. Goodman incorrectly states that as of April 29, 2007 there were no data documenting disturbances to harbor seals by DBOC. In fact, the database contains unambiguous records from April 26, 2007

documenting disturbances at multiple sites. An additional disturbance occurred the previous year on May 6, 2006.

- 300 foot Protective Zone - Dr. Goodman states that DBOC agreed to a 300 foot protective zone, and therefore, implies that seals could not be disturbed at distances greater than 300 ft. The National Marine Fisheries Service generally recommends a distance of 300 ft (100m) for not disturbing marine mammals; however, there is ample information in the published literature that documents harbor seals being disturbed at greater distances. Johnson and Gutierrez (2007) document power boats disturbing harbor seals in Washington at an average distance of 625 ft (190.5 m) and as far as 1217 ft (371 m). Suryan and Harvey (1999) in another study in Washington document that 25% of disturbances to harbor seals occurred at a distance of 656-984 ft (200-300 m). Aircraft at high altitude also disturb harbor seals depending upon the amount of noise generated by the aircraft. It is not unreasonable that harbor seals in Drakes Estero were disturbed by boat noise generated at distances greater than 300 ft.
- Time of April 29 Count - Dr. Goodman used a different start time at which the volunteers conducted their full count of Drakes Estero from the data in the pinniped database. The database and datasheet clearly document that the data was collected at 2:15 PM. However, apparently based on a note on the photocopied datasheet Dr. Goodman assumes that the data were collected at 3:15 PM in his letter on page 7.

*"Based upon the tide chart with appropriate lag correction, it would have been difficult if not impossible for them to count seals on UEN and OB until 15:15. If the tide was too high and they couldn't count the seals on UEN or OB until 15:15, then how could they record a disturbance at 12:50?"*

The field data sheet from the survey on April 29, 2007 reads, "poor tide – counted when could – had to leave at 3:15." Dr. Goodman mistakenly concluded that the volunteers could not count the harbor seals until 3:15 PM, which falsely supported his claims that earlier disturbances could not have occurred.

## 2. Allegation that disturbance data Ex 5

Dr. Goodman states on page 16 in his letter to the NRC dated that

Ex 5

During preparation for the first Marine Mammal Science (MMS) journal submission, Becker inadvertently overlooked the 2003 disturbances. The datum (one disturbance) was in the dataset that D. Press, the NPS data manager, provided to Becker preparing the first MMS manuscript. While preparing for the NRC presentation on September 4, 2008, Becker realized his error of omission, and *therefore, included an asterisk by the 2003*

*data with "possible disturbance" on the NRC presentation (see Appendix B).* Then, after the NRC meeting and when revising the MMS paper in late September, 2008, Becker and D. Press found an additional disturbance in the comments section of the data sheet for that survey day. In sum, there were two actual disturbances in 2003. Becker incorporated both into the final paper which he shared with NRC as soon as it was accepted by the editor of MMS.

### 3. Allegation that NPS withheld information from the MMS editor.

Dr. Goodman states on page xx that

*"In his (Becker's) statement in the results section of his paper on lines 319-329, he told us one important fact that he did not tell the Editor in his cover letter when he wrote:*

*"For example, there was still a significant positive correlation ... of disturbance rate with oyster harvest even when removing the 2006 disturbance, four of the 2007 disturbances (including two disturbances on one day in 2007 that the mariculture company challenged), and four of the 1996 disturbances (nine total from the analysis)"*

Goodman's allegation is incorrect. We sent the editor this sample paragraph before final re-acceptance of the paper. The editor approved, and it was included in the final paper. See attached email in **Appendix C** of this correspondence.

Furthermore, we addressed each one of Dr. Goodman's September 2008 criticisms directly with the MMS Editor, who in addition to reviewing them himself, passed them on to the Associate Editor of MMS and the two original peer reviewers. Thus, the notion that we cherry-picked data or misled the reviewers in any way is incorrect. In fact, we pointed the reviewers and editor to the DOI Inspector General report. The MMS editor also corresponded directly with the National Research Council and The California Department of Fish and Game. We also offered to the MMS Editors our raw data and NPS pinniped database, so they could conclude for themselves <sup>Ex 5</sup> of Dr. Goodman's allegations, <sup>Ex 5</sup>

Dr. Goodman also suggests that by our performing the correlations without some of the disturbances to show their robustness to sample size, we are acknowledging that these disturbances are false. This is incorrect. After discussion with the MMS editor, we chose to include this statement (quoted above) <sup>Ex 5</sup>

<sup>Ex 5</sup> Goodman had previously disputed only the NPS Trip Report of April 26, 2007 conducted by S. Allen. To demonstrate the robustness of the analyses to small sample size, we removed several disturbances, including the April 26 survey.

### 4. Inclusion of the 1996-1999, and 2008 disturbance data in the second paper.

Dr. Goodman states: Ex 5

Ex 5

We incorporated more years at the urging of Dr. Goodman himself. There is no cherry-picking as we included ALL data. The 1996-1999 data were not in the previous database upon preparation of the first version of the MMS paper, but we were able to compile and access it for the revised second submission.

The NPS pinniped database indicates **four** disturbances in 1996. Due to Dr. Goodman's query, we have realized that we accidentally included two *potential* disturbances from 1996 in our calculations since they had a "disturbance = "Yes" entered in the database. In fact, there were 4 oyster related disturbances and 2 oyster related *possible* disturbances. We regret this error but it nonetheless does not alter the statistics or conclusions in any way. We will inform the Editor of MMS of our error and seek his guidance on whether a correction is warranted.

Nevertheless, the removal of Ex 5 disturbance in 1996 does not change any conclusions or patterns described in the paper (see **Appendix D**). 1996 is still the year with highest rate of disturbance, and the significance and correlation of the oyster harvest-disturbance rate remain exactly the same since we used ranks tests for the analysis. See **Appendix D** for original and new plots. Thus, Dr. Goodman's allegation that we purposely increased the number of disturbances in 1996 to "help" our statistics or create a more dramatic graph is inconsistent with the facts and the data.

We assume Dr. Goodman only counts two disturbances in 1996 (rather than four) because he characterizes two of the motorboat related disturbances as non-oyster related while we consider these to be oyster related. As is well known, only oyster company motor boats are allowed in the Estero without special permission and this closure has been in effect since the early 1990s. Goodman's statement that "*many fishing and recreational motorboats enter the estero*" on page 17 of his letter is not supported by park records including law enforcement case reports, harbor seal monitoring field notes and park staff observations.

Finally, cherry-picking is alleged because we did not analyze other disturbance sources in the estero (other than to note the relative frequency of human related disturbance is higher in the lower estero because the lower estero haul-out sites are attached to the mainland). On November XX, we provided the NRC with a justification for solely analyzing the mariculture related disturbances and we explained in the MMS paper: See **Appendix E**.

**5. Allegation that NPS did not follow stated QA/QC protocols:**

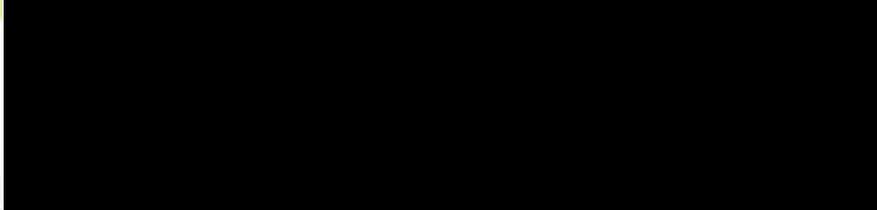
Dr. Goodman states on page 12 that:

*“April 29, 2007: Disturbance Survey Violated NPS Protocols,”*

Dr. Goodman makes several assumptions regarding NPS protocols which are incorrect.

- The MMS paper clearly states that *count* data were filtered for date, observer experience, tide and weather. However, the disturbance data were not subject to these criteria. Disturbances can be recorded at any tide, weather, or observer experience level.

Ex 5



In addition, for the purposes of the Becker et al. paper, we limited the count data used to surveys collected on days with a 2.0 ft tide or less. For our analyses, we extracted the maximum count per survey, and we checked to ensure that the count occurred at a reasonable time in relation to the low tide time.

- Dr. Goodman appears to have misunderstood NPS procedures for reviewing harbor seal data prior to analysis. All data that we receive from volunteers is entered into the database, and prior to analyzing and reporting the data, we review the *count* data to see if any of the surveys were of potentially poor quality and should be discarded from our analysis. Records are never discarded from the database itself, which remain important NPS records.

Each survey is evaluated and assigned a “HighQualityCount?” value of “yes” or “no”. A survey may be of poor quality and assigned a value of “no” for the following reasons:

- poor visibility
  - not all subsites were surveyed
  - poor observer quality of *all* survey participants
  - other comments noted on the datasheet, especially in regards to weather conditions
- The Volunteers’ Experience - Dr. Goodman asserted that the volunteers (Mr. and Mrs. Leites) who surveyed on April 29, 2007 did not have more than one year of survey experience and that their first survey was on March 24, 2007. This is in fact the date of their first survey in *Drakes Estero*. The Leites, however, began volunteering with our program in April of 2006, spending most of their time at Bolinas Lagoon and Duxbury Reef. In addition, March 24 was not their first survey of the 2007 monitoring season. The databases that store these surveys were delivered to Dr. Goodman in his FOIA requests dated August 2007 and January

2008. In short, the Leites did meet our criteria of having at least one year of prior experience in our program before including their data for analysis.

- A key point that Dr. Goodman misrepresents is that although we review each disturbance record in the database for accuracy against the paper data sheet, we do not enforce the additional, above QA/QC procedures on the disturbance data.

Ex 5

Ex 5

We have confidence that our first year observers, all of which must attend our trainings, have the ability to observe, for example, a motorboat flushing harbor seals off a sandbar. Furthermore, it is irrelevant whether or not that disturbance occurs in poor weather conditions or at a high or low tide.

#### 6. Allegation that the MMS paper title is incorrect.

Dr. Goodman states on page 25 that

*“Becker cherry-picked the 1996 data, but never changed their title or abstract, which still begins with 1997.”*

The paper clearly models data from 1997-2007, as the title describes. We include disturbance data from 1996 and 2008.

Ex 5

Ex 5

In fact, eliminating disturbance data that we had available (e.g., 1996 and 2008) would actually be cherry picking. It is difficult to see how including all available data is cherry picking.

Ex 5

#### 7. Application of Spearman ranks test to test for correlation between disturbance rate and oyster harvest:

Dr. Goodman states on page x that:

Ex 5

Spearman rank tests are ranks tests, and therefore, are *less* susceptible to outliers than traditional parametric correlations, which is why we used them. Problems can arise at very small sample sizes ( $n < 10$ ), and it is wise to perform Monte Carlo simulations at these sample sizes, but we do not consider a time series of 1996 – 2008 (13 years) an issue. Nonetheless, using Spearman tests on these sample sizes is standard practice.

In conclusion, we note that in previous iterations of his statements, Dr. Goodman criticized our statistical modeling techniques, which are all standard professional practice. His critiques were closely examined by editors and peer reviewers at MMS and flatly rejected. He now primarily focuses on data handling and alleges we falsified data that were independently collected by several different volunteers and NPS staff. We find Dr. Goodman’s statements misguided as evidenced by the conclusions by the independent groups the Marine Mammal Science and the Inspector General that there was no evidence

of scientific misconduct. Separately, the National Research Council refused to consider his allegations of scientific misconduct. Nevertheless, we treat with utmost seriousness Dr. Goodman's persistent pattern of attacks on our scientific credibility. Lastly, during the preparation of the MMS paper and NRC presentations, the database we were working with was available to several different groups, including Dr. Goodman and the NRC. We also offered it to the editor of Marine Mammal Science. Thus, there is no basis for the allegation that we are manipulating data; the raw data are available for these groups to see and arrive at their own conclusions about our analyses and interpretation.

JOHNSON, A., AND A. ACEVEDO-GUTIERREZ. 2007. Regulation compliance by vessels and disturbance of harbor seals (*Phoca vitulina*). *Canadian Journal of Zoology* 85:2902-94.

SURYAN R. M., AND J. T. HARVEY. 1999. Variability in reactions of Pacific harbor seals, *Phoca vitulina richardii*, to disturbance. *Fisheries Bulletin* 97:332-339.



David Graber /SEKI/NPS  
02/05/2009 05:24 PM

To: Sarah Allen/PORE/NPS@NPS  
cc: Ben Becker/PORE/NPS@NPS, Don Neubacher/PORE/NPS  
bcc:  
Subject: Re: for review

Sarah --

Here is your response back with my *suggested* edits. They are mostly to make it easier to understand, to make the meaning more precise

Ex 5

As I said on the phone, after final editing, convert this to a pdf and add the appendices to the back. Be sure each appendix is clearly referenced in the main text. Each time you refer to a Goodman allegation or charge in his letter, reference the page number(s) in your response so Bert has some hope at connecting one with the other.

Ex 5

If you need to talk to me about this tonight, call me at home

Ex 6

d



Goodman\_response\_Feb\_2009-DMG gloss.doc

---

David M. Graber, Ph.D.  
Chief Scientist, Pacific West Region, National Park Service  
Sequoia & Kings Canyon National Parks  
47050 Generals Highway  
Three Rivers, CA 93271-9599  
559.565.3173 voice 559.679.5999 cell 559.565.4283 fax  
david\_graber@nps.gov

---

Sarah Allen/PORE/NPS



Sarah Allen/PORE/NPS  
02/05/2009 03:21 PM

To: David Graber/SEKI/NPS@NPS, Bill Jackson/FTCOLLINS/NPS@NPS  
cc: Don Neubacher/PORE/NPS@NPS  
Subject: for review

See attached for review - You can call me anytime tonite or tomorrow

Ex 6

Ex 6

[attachment "App-A\_tide\_response.doc" deleted by David Graber/SEKI/NPS] [attachment "App-B\_Becker\_NRC\_Sept\_2

---

Sarah G. Allen, Ph.D.  
Senior Science Advisor  
National Park Service  
Point Reyes National Seashore  
One Bear Valley Road  
Point Reyes Station, CA 94956  
Phone 415-464-5187  
Fax 415-464-5182  
sarah\_allen@nps.gov

><(((e>...<(((e>...

**NPS Response to Goodman 01/18/2009 Letter to NRC.**

This document addresses the allegations and criticisms put forth in a 01/18/2009 letter from Dr. Corey Goodman to the National Research Council (NRC). Because the letter addresses many themes and frequently revisits themes in a non-linear fashion, we have reorganized what we believe are the salient points and address them in turn below. Each short response below is supported by additional referenced documents that are attached.

Ben Becker  
David Press  
Sarah Allen

**1. Regarding the allegation that April 29<sup>th</sup>, 2007 disturbance events must have been falsified.** The allegation of falsified data is based on several incorrect assumptions. Dr. Goodman assumes that the seals do not use the site when the sandbars are submerged, that seals are not disturbed by sources > 300 ft away, and that several volunteers and NPS staff separately **Ex 5** on disturbances on several days of field observations. The NPS refutes these assumptions with actual data on seal behavior both at Drakes Estero and elsewhere.

- **Ex 5**  
**Ex 5** Seals (especially mothers with pups) regularly hover over sandbars before they are exposed by rising or falling tides, and this is a common behavior of harbor seals. Furthermore, the NPS documented disturbances were recorded during the *breeding* season when females and pups are commonly on these sandbars. Seals use these sandbars less frequently during the January “experiment” that Goodman cited. There is no basis for this allegation based on NPS images, the attached **Appendix A**, and seasonality of the “experiment”, and well known seal behavior. See **Appendix A** for analysis and images.
- **Improbability of Disturbances** - Dr. Goodman discounts the two April 29 disturbance events partly because they occurred so close together (50 minutes) that the boat would not have had enough time to return to the dock, pick up more bags, and then travel back to sandbar UEN. In fact, the Leites never indicated that the boat returned to the dock and then came back between the disturbance events. Why Dr. Goodman made this assumption, and subsequently discounted the events as logistically impossible, is difficult to understand.
- **DBOC Disturbance Records** - Dr. Goodman incorrectly states that as of April 29, 2007 there were no data documenting disturbances to harbor seals by DBOC. In fact, the database contains unambiguous records from April 26, 2007 documenting disturbances at multiple sites. An additional disturbance occurred the previous year on May 6, 2006.

- **300 foot Protective Zone** - Dr. Goodman states that DBOC agreed to a 300 foot protective zone, and therefore, implies that seals could not be disturbed at distances greater than 300 ft. The National Marine Fisheries Service generally recommends a distance of 300 ft (100m) for not disturbing marine mammals; however, there is ample information in the published literature that documents harbor seals being disturbed at greater distances. Johnson and Gutierrez (2007) document power boats disturbing harbor seals in Washington at an average distance of 625 ft (190.5 m) and as far as 1217 ft (371 m). Suryan and Harvey (1999) in another study in Washington document that 25% of disturbances to harbor seals occurred at a distance of 656-984 ft (200-300 m). Aircraft at high altitude also disturb harbor seals depending upon the amount of noise generated by the aircraft. It is not unreasonable that harbor seals in Drakes Estero were disturbed by boat noise generated at distances greater than 300 ft.
- **Time of April 29 Count** - Dr. Goodman used a different start time at which the volunteers conducted their full count of Drakes Estero from the data in the pinniped database. The database and datasheet clearly document that the data were collected at 2:15 PM. However, Ex 5 based on a note on the photocopied datasheet which Dr. Goodman Ex 5 decided that the data must have been collected at 3:15 PM. The note in its entirety reads, "poor tide – counted when could – had to leave at 3:15." Dr. Goodman mistakenly concluded that the volunteers could not count the harbor seals until 3:15 PM, which falsely supported his claims that earlier disturbances could not have occurred.

**2. Regarding 2003 disturbance data changes:** During preparation for the first Marine Mammal Science (MMS) journal submission, Becker Ex 5 inadvertently overlooked the 2003 disturbances. The datum (one disturbance) was in the dataset that D. Press, the NPS data manager, provided to Becker preparing the first MMS manuscript. Becker realized his error of omission while preparing for the NRC presentation on Sept 4, 2008 and therefore included an asterisk by the 2003 data with "possible disturbance" on the NRC presentation (see Appendix B) Ex 5

Ex 5

**3. Regarding the allegation that NPS withheld information from the MMS editor, Dr. Goodman wrote:**

"In his (Becker's) statement in the results section of his paper on lines 319-329, he told us one important fact that he did not tell the Editor in his cover letter when he wrote:

*"For example, there was still a significant positive correlation . . . of disturbance rate with oyster harvest even when removing the 2006 disturbance, four of the 2007 disturbances (including two disturbances on one day in 2007 that the mariculture company challenged), and four of the 1996 disturbances (nine total) from the analysis"*

Ex 5

Ex 5

Ex 5

DRAFT Goodman Response Feb 5, 2009 FOR INTERNAL REVIEW ONLY – PRE DECISIONAL

This Goodman's allegation is **Ex 5** incorrect. We sent the editor this sample paragraph before final re-acceptance of the paper. He approved, and it was included in the final paper. See attached email in **Appendix C** of this correspondence.

Furthermore, we addressed each one of Dr. Goodman's September 2008 criticisms directly to the Marine Mammal Science Editor, who in addition to reviewing them himself, passed them on to the Associate Editor and two original peer reviewers. Thus, the notion that we cherry-picked data or misled the reviewers in any way is incorrect. In fact, we pointed the reviewers and editor to the Inspector General report, and the editor corresponded with the National Research Council and The California Department of Fish and Game. We also offered to the Marine Mammal Science Editor to review our raw data and NPS pinniped database, so they could conclude for themselves **Ex 5** of Dr. Goodman's allegations. **Ex 5**

Dr. Goodman also suggests that by performing the correlations without some of the disturbances to show their robustness to sample size, we are acknowledging that these disturbances are false. This is incorrect. After discussion with the MMS editor, we chose to include this statement **Ex 5**

**Ex 5** Goodman had previously disputed only the NPS Trip Report disturbance observation as false and to demonstrate the robustness of the analyses to small sample size, we removed several disturbances.

**4. Regarding inclusion of the 1996-1999, and 2008 disturbance data in the second paper:** We simply incorporated more years at the urging of Dr. Goodman himself. There is no cherry picking as we included ALL data. The 1996-1999 data were not in the database upon preparation of the first version of the MMS paper, but we were able to compile and access it for the revised second submission.

The NPS pinniped database indicates four disturbances in 1996. Due to Dr. Goodman's query, we have realized that we accidentally included two *potential* disturbances from 1996 in our calculations since they had a "disturbance = "Yes" entered in the database. In fact, there were 4 oyster related disturbances and 2 oyster related *potential* disturbances. We regret this error but it nonetheless does not ~~impart~~ alter the statistics or conclusions, in any way. We will inform the editor of MMS of our error (which in no way changes any conclusions or patterns described in the paper) and seek his guidance on whether a correction is warranted.

1996 is still the year with highest rate of disturbance, and the significance and correlation of the oyster harvest-disturbance rate remains exactly the same since we used ranks tests for the analysis. See **Appendix D** for original and new plots. Thus, Dr. Goodman's allegation that we purposely increased the number of disturbances in 1996 to "help" our statistics or create a more dramatic graph is completely inconsistent with the facts and the data.

DRAFT Goodman Response Feb 5, 2009 FOR INTERNAL REVIEW ONLY - PRE DECISIONAL

We assume Dr. Goodman only counts two disturbances in 1996 (rather than four) because he characterizes two of the motorboat related disturbances as non-oyster related while we consider these to be oyster related. As is well known, only oyster company motor boats are allowed in the Estero without special permission and this closure has been in effect since the early 1990s. Goodman's statement that many fishing and recreational motorboats enter the estero is not supported by park records including law enforcement records, harbor seal monitoring records and park staff observations.

Further, cherry-picking is again alleged because we did not analyze other disturbance sources in the estero (other than to note the relative frequency of human related disturbance is higher in the lower estero, since those lower estero haul-out sites are attached to the mainland). On November XX, we provided the NRC with justification for solely analyzing the mariculture related disturbances: See Appendix E.

Ex 5

5. Regarding the allegation of not following NPS and our stated QA/QC protocols: Dr. Goodman makes several assumptions regarding NPS protocols which are incorrect.

Ex 5

- The MMS paper clearly states that *count* data were filtered for date, observer experience, tide and weather. However, the disturbance data were not subject to these criteria. Disturbances can be recorded at any tide, weather, or observer experience level.

Ex 5

In addition, for the purposes of the Becker et al. paper, we limited the count data we used to surveys collected on days with a 2.0 ft tide or less. For our analyses, we extracted the maximum count per survey, and we checked to ensure that the count occurred at a reasonable time in relation to the low tide time.

- Dr. Goodman ~~has~~ appears to ~~have~~ misunderstood NPS procedures for reviewing harbor seal data prior to analysis. All data that we receive from volunteers is entered into the database, and prior to analyzing and reporting the data, we review the *count* data to see if any of the surveys were of potentially poor quality and should be discarded from our analysis. Records are never discarded from the database itself, which remain important NPS records.

Ex 5

Each survey is evaluated and assigned a "HighQualityCount?" value of "yes" or "no". A survey may be of poor quality and assigned a value of "no" for the following reasons:

- poor visibility

DRAFT Goodman Response Feb 5, 2009 FOR INTERNAL REVIEW ONLY – PRE DECISIONAL

- not all subsites were surveyed
- poor observer quality of *all* survey participants
- other comments noted on the datasheet, especially in regards to weather conditions

- The Volunteers' Experience - Dr. Goodman asserted that the volunteers (Mr. and Mrs. Leites) who surveyed on April 29, 2007 did not have more than one year of survey experience and that their first survey was on March 24, 2007. This is in fact the date of their first survey in *Drakes Estero*. The Leites, however, began volunteering with our program in April of 2006, spending most of their time at Bolinas Lagoon and Duxbury Reef. In addition, March 24 was not their first survey of the 2007 monitoring season. The databases that store these surveys were delivered to Dr. Goodman in his FOIA requests dated August 2007 and January 2008. In short, the Leites did meet our criteria of having at least one year of prior experience in our program before including their data for analysis.

- A key point that Dr. Goodman misrepresented Ex 5 that although we review each disturbance record in the database for accuracy against the paper data sheet, we do not enforce the additional, above OA/OC procedures on the disturbance data. Ex 5

Ex 5 We have confidence that our first year observers, all of which must attend our trainings, have the ability to observe, for example, a motorboat flushing harbor seals off a sandbar. Furthermore, it is Ex 5 irrelevant whether or not that disturbance occurs in poor weather conditions or at a high or low tide.

6. Regarding the allegation that the MMS paper title is incorrect. The paper clearly models data from 1997-2007, as the title describes. We include disturbance data from 1996 and 2008. Ex 5

Ex 5 In fact, eliminating disturbance data that we had available (e.g., 1996 and 2008) would actually be cherry picking. It is difficult to see how including all available data is cherry picking.

7. Regarding use of a Spearman ranks test to test for correlation between disturbance rate and oyster harvest. Ex 5

Ex 5

In closing, we note that in previous iterations of his statements, Dr. Goodman criticized our statistical modeling techniques, which are all standard professional practice. His critiques were closely Ex 5 examined by editors and peer reviewers at Marine Mammal Science and flatly rejected. He now primarily focuses on data handling and alleges weations of falsified data that were independently collected by

Ex 5

Ex 5

several different volunteers and NPS staff.

Ex 5

Ex 5

we find misguided as evidenced by the independent groups Marine Mammal Science and the Inspector General rejecting the vast majority of his allegations and the National Research Council's refusal to consider his allegations of scientific misconduct, we would like to point out the persistent pattern of attacks on our scientific credibility that we treat with utmost seriousness. Lastly, during the preparation of the MMS paper and NRC presentations, the database we were working with was available to several different groups, including Dr. Goodman and the National Research Council. We also offered it to the editor of Marine Mammal Science. Thus, there is no basis for the allegation that we are manipulating data; the raw data is/are available for these groups to see and arrive at their own conclusions on our analyses and interpretation.

JOHNSON, A., AND A. ACEVEDOGLUTIERREZ. 2007. Regulation compliance by vessels and disturbance of harbor seals (*Phoca vitulina*). *Canadian Journal of Zoology* 85:290294.

SURYAN R. M., AND J. T. HARVEY. 1999. Variability in reactions of Pacific harbor seals, *Phoca vitulina richardii*, to disturbance. *Fisheries Bulletin* 97:332-339.



Bill  
Jackson/FTCOLLINS/NPS  
02/06/2009 08:15 AM

To: Sarah Allen/PORE/NPS@NPS  
cc:  
bcc:  
Subject: A clean Try

Sarah:

As I figured, c3Portal is down again, which is why I'm replying from home email.

I've attached the Becker, Press, Allen "Response to Goodman" manuscript with a few pretty minor editorial suggestions in "track changes." Based upon my read of the Goodman January 18th memo to Susan Roberts (and the Lunny letter to Roberts), I think you've produced a very credible point-by-point rebuttal to most of the accusations. I also think the paper will be very useful to both Bert and Dan in getting perspective on these latest allegations.

Ex 5 [redacted] I do have a couple of general comments, below:

As follow-up to my earlier question, I think it will be very important to figure out who you're trying to communicate this information to.

Ex 5 [redacted]

Ex 5 Basically, the Response to Goodman paper sticks to clarifying/explaining the facts, but it would need to be transmitted to the NAS under a cover letter that restates the NPS commitment to a credible independent review of what is scientifically known about the interactions between oyster mariculture and natural ecology of Drakes Estero, and other estuaries.

Ex 5 [redacted]

Ex 5 [redacted]

Ex 5 [redacted]

Ex 5

Yikes, it's late and I'm rambling. I'm not sure any of this is very useful, but it's time to push the send button. Let's talk tomorrow.

Bill



PORE GoodmanResponse\_2-06-09\_bj.doc

Bill Jackson  
Chief, Water Resources Division  
Natural Resource Program Center  
National Park Service  
970-225-3503  
970-214-5870 (cell)

NPS Response to Goodman 01/18/2009 Letter to NRC

This document addresses the allegations and criticisms put forth in a 01/18/2009 letter from Dr. Corey Goodman to the National Research Council (NRC). Because the letter addresses many themes and frequently revisits themes in a non-linear fashion, we have reorganized what we believe are the salient points and address them in turn below. Each short response below is supported by additional referenced documents that are attached.

Ben Becker  
David Press  
Sarah Allen

**1. Regarding the allegation that April 29<sup>th</sup>, 2007 disturbance events must have been falsified.** The allegation of falsified data is based on several incorrect assumptions. Dr. Goodman assumes that the seals do not use the site when the sandbars are submerged, that seals are not disturbed by sources  $\geq 300$  ft away, and that several volunteers and NPS staff separately **Ex 5** on disturbances on several days of field observations. The NPS refutes these assumptions with actual data on seal behavior both at Drakes Estero and elsewhere.

- NPS has time stamped images of seals hauled out at similar falling tides during the 2008 *breeding* season in Drakes Estero. Seals (especially mothers with pups) regularly hover over sandbars before they are exposed by rising or falling tides, and this is a common behavior of harbor seals. Furthermore, the NPS documented disturbances were recorded during the *breeding* season when females and pups are commonly on these sandbars. Seals use these sandbars less frequently during January ~~the time of the the January-~~“experiment” that Goodman cited. There is no basis for this allegation based on NPS images, the attached Appendix A, and seasonality of the “experiment”, and well known seal behavior. See Appendix A for analysis and images.
- Improbability of Disturbances - Dr. Goodman discounts the two April 29 disturbance events partly because they occurred so close together (50 minutes) that the boat would not have had enough time to return to the dock, pick up more bags, and then travel back to sandbar UEN. In fact, the Leitos never indicated that the boat returned to the dock and then came back between the disturbance events. There is no basis for why Dr. Goodman to have assumed this made this assumption, and subsequently discounted the events as logistically impossible **Ex 5**

**Ex 5**

DBOC Disturbance Records - Dr. Goodman incorrectly states that as of April 29, 2007 there were no data documenting disturbances to harbor seals by DBOC. In fact, the database contains unambiguous records from April 26, 2007 documenting disturbances at multiple sites. An additional disturbance occurred the previous year on May 6, 2006.

DRAFT Goodman Response Feb 5, 2009 FOR INTERNAL REVIEW ONLY - PRE DECISIONAL

- 300 foot Protective Zone - Dr. Goodman states that DBOC agreed to a 300 foot protective zone, and therefore, implies that seals could not be disturbed at distances greater than 300 ft. The National Marine Fisheries Service generally recommends a distance of 300 ft (100m) for not disturbing marine mammals; however, there is ample information in the published literature that documents harbor seals being disturbed at greater distances. Johnson and Gutierrez (2007) document power boats disturbing harbor seals in Washington at an average distance of 625 ft (190.5 m) and as far as 1217 ft (371 m). Suryan and Harvey (1999) in another study in Washington document that 25% of disturbances to harbor seals occurred at a distance of 656-984 ft (200-300 m). Aircraft at high altitude also disturb harbor seals depending upon the amount of noise generated by the aircraft. It is not unreasonable that harbor seals in Drakes Estero were disturbed by boat noise generated at distances greater than 300 ft.
- Time of April 29 Count - Dr. Goodman used a different start time at which the volunteers conducted their full count of Drakes Estero from the data in the pinned database. The database and datasheet clearly document that the data were collected at 2:15 PM. However, based on a note on the photocopied datasheet which Dr. Goodman Ex 5 decided that the data must have been collected at 3:15 PM. The note in its entirety reads, "poor tide - counted when could - had to leave at 3:15" Dr. Goodman mistakenly concluded that the volunteers could not count the harbor seals until 3:15 PM, which incorrect Ex 5 supported his claims that earlier disturbances could not have occurred.

2. Regarding 2003 disturbance data changes: During preparation for the first Marine Mammal Science (MMS) journal submission, Becker accidentally overlooked the 2003 disturbances. The data (one disturbance) was in the dataset that D. Press, the NPS data manager, provided to Becker preparing the first MMS manuscript. Becker realized his error of omission while preparing for the NRC presentation on Sept 4, 2008 and therefore included an asterisk by the 2003 data with "possible disturbance" on the NRC presentation (see Appendix B) Ex 5  
Ex 5

3. Regarding the allegation that NPS withheld information from the MMS editor, Dr. Goodman wrote:

"In his (Becker's) statement in the results section of his paper on lines 319-329, he told us one important fact that he did not tell the Editor in his cover letter when he wrote:

*For example, there was still a significant positive correlation . . . of disturbance rate with oyster harvest even when removing the 2006 disturbance, four of the 2007 disturbances (including two disturbances on one day in 2007 that the mariculture company challenged), and four of the 1996 disturbances (nine total) from the analysis.*"

DRAFT Goodman Response Feb 5, 2009 FOR INTERNAL REVIEW ONLY – PRE DECISIONAL

This allegation is absolutely incorrect. Ex 5 We sent the editor this sample paragraph before final re-acceptance of the paper. He approved, and it was included in the final paper. See attached email in Appendix C of this correspondence.

Furthermore, we addressed each one of Dr. Goodman's September 2008 criticisms directly to the Marine Mammal Science Editor, who in addition to reviewing them himself, passed them on to the Associate Editor and two original peer reviewers. Thus, the notion that we cherry picked data or misled the reviewers in any way is incorrect. In fact, we pointed the reviewers and editor to the Inspector General report, and the editor corresponded with the National Research Council and The California Department of Fish and Game. We also offered to the Marine Mammal Science Editor to review our raw data and NPS pinniped database, so they could conclude for Ex 5

Ex 5

Dr. Goodman also suggests that by performing the correlations Ex 5 without some of the disturbances, Ex 5 to show their robustness of the correlations to sample size, we are acknowledging that these disturbances are false. This is Ex 5. In discussion with the MMS editor, we chose to include this statement Ex 5

Ex 5

Ex 5

Dr. Goodman had previously disputed only the NPS Trip Report disturbance observation as false and to demonstrate the robustness of the analyses to small sample size, Ex 5

Ex 5

4. Regarding inclusion of the 1996-1999, and 2008 disturbance data in the second paper: We simply incorporated more years at the suggestion of Dr. Goodman himself. There is no cherry picking as we included ALL data. The 1996-1999 data were not in the database upon preparation of the first MMS paper, but we were able to compile and access it for the second submission.

The NPS pinniped database indicates four disturbances in 1996. Due to Dr. Goodman's query, we have realized that we accidentally included two *potential* disturbances from 1996 in our calculations since they had a "disturbance = "Yes" entered in the database. In fact, there were 4 oyster related disturbances and 2 oyster related *potential* disturbances. We regret this error but it nonetheless does not impact the statistics or conclusions in any way. We will inform the editor of MMS of our error Ex 5

Ex 5 and seek his guidance on whether a correction is warranted.

1996 is still the year with highest rate of disturbance, and the significance and correlation of the oyster harvest-disturbance rate remains exactly the same since we used ranks tests for the analysis. See Appendix D for original and new plots. Thus, Dr. Goodman's allegation that we purposely increased the number of disturbances in 1996 to "help" our

DRAFT Goodman Response Feb 5, 2009 FOR INTERNAL REVIEW ONLY – PRE DECISIONAL

statistics or create a more dramatic graph is completely inconsistent with the facts and the data.

We assume Dr. Goodman only counts two disturbances in 1996 (rather than four) because he characterizes two of the motorboat related disturbances as non-oyster related while we consider these to be oyster related. As is well known, only oyster company motor boats are allowed in the Estero without special permission and this closure has been in effect since the early 1990s. Goodman's statement that many fishing and recreational motorboats enter the estero is not supported by park records including law enforcement records, harbor seal monitoring records and park staff observations.

Further, cherry picking is again alleged because we did not analyze other disturbance sources in the estero (other than to note the relative frequency of human related disturbance is higher in the lower estero, since those lower estero haul-out sites are attached to the mainland). On November XX, we provided the NRC with justification for solely analyzing the mariculture related disturbances: See Appendix E.

5. Regarding the allegation of not following NPS and our stated QA/QC protocols: Dr. Goodman makes several assumptions regarding NPS protocols which are incorrect.

- The MMS paper clearly states that *count* data were filtered for date, observer experience, tide and weather. However, the disturbance data were not subject to these criteria. Disturbances can be recorded at any tide, weather, or observer experience level.

Ex 5

In addition, for the purposes of the Becker et al. paper, we limited the count data we used to surveys collected on days with a 2.0 ft tide or less. For our analyses, we extracted the maximum count per survey, and we checked to ensure that the count occurred at a reasonable time in relation to the low tide time.

- Dr. Goodman has misunderstood NPS procedures for reviewing harbor seal data prior to analysis: All data that we receive from volunteers are entered into the database, and prior to analyzing and reporting the data, we review the *count* data to see if any of the surveys were of potentially poor quality and should be discarded from our analysis. Records are never discarded from the database, which remain important NPS records.

Each survey is evaluated and assigned a "HighQualityCount?" value of "yes" or "no". A survey may be of poor quality and assigned a value of "no" for the

Ex 5

following reasons:

- poor visibility
  - not all subsites were surveyed
  - poor observer quality of *all* survey participants
  - other comments noted on the datasheet, especially in regards to weather conditions
- The Volunteers' Experience - Dr. Goodman asserted that the volunteers (Mr. and Mrs. Leites) who surveyed on April 29, 2007 did not have more than one year of survey experience and that their first survey was on March 24, 2007. This is in fact the date of their first survey in *Drakes Estero*. The Leites, however, began volunteering with our program in April of 2006, spending most of their time at Bolinas Lagoon and Duxbury Reef. In addition, March 24 was not their first survey of the 2007 monitoring season. The databases that store these surveys were delivered to Dr. Goodman in his FOIA requests dated August 2007 and January 2008. In short, the Leites did meet our criteria of having at least one year of prior experience in our program before including their data for analysis.
- A key point that Dr. Goodman misunderstands is that although we review each disturbance record in the database for accuracy against the paper data sheet, we do not enforce the additional, above QA/QC procedures on the disturbance data. Recording and cataloging disturbances is essential to managing harbor seals within Point Reyes National Seashore. We have confidence that our first year observers, all of whom ~~which~~ must attend our trainings, have the ability to observe, for example, a motorboat flushing harbor seals off a sandbar. Furthermore, it is insignificant whether or not that disturbance occurs in poor weather conditions or at a high or low tide.

6. Regarding the allegation that the MMS paper title is incorrect. The paper clearly models data from 1997-2007, as the title describes. We include disturbance data from 1996 and 2008. Ex 5

Ex 5 in fact, eliminating disturbance data that we had available (e.g., 1996 and 2008) would actually be cherry picking. It is difficult to see how including all available data is cherry picking.

7. Regarding use of a Spearman ranks test to test for correlation between disturbance rate and oyster harvest: Spearman rank tests are ranks tests ~~that~~ and are less susceptible to outliers than traditional parametric correlations, which is why we used them. Problems can arise at very small sample sizes ( $n < 10$ ), and it is wise to perform Monte Carlo simulations at these sample sizes, but we do not consider a time series of 1996 – 2008 (13 years) an issue. Nonetheless, using Spearman tests on these sample sizes is standard practice.

In closing, we note that in previous iterations of his statements, Dr. Goodman Ex 5 critiqued our statistical modeling techniques, which are all standard Ex 5 His

DRAFT Goodman Response Feb 5, 2009 FOR INTERNAL REVIEW ONLY - PRE DECISIONAL

critiques were closely reviewed by editors and peer reviewers at Marine Mammal Science and flatly rejected. He now primarily focuses on data handling and allegations of falsified data that were independently collected by several different volunteers and NRS staff

Ex 5

Ex 5

Ex 5

his efforts are misguided as evidenced by the independent groups of Marine Mammal Science and the Inspector General rejecting the vast majority of his allegations.

Ex 5

Lastly, during the preparation of the MMS paper and NRC presentations, the database we were working with was held by several different groups, including Dr. Goodman and the National Research Council. We also offered it to the editor of Marine Mammal Science. Thus, there is no basis for the allegation that we are manipulating data; the raw data are available for these groups to see and arrive at their own conclusions on our analyses and interpretation.

JOHNSON, A., AND A. ACEVEDOGUTIERREZ. 2007. Regulation compliance by vessels and disturbance of harbor seals (*Phoca vitulina*). Canadian Journal of Zoology 85:290294.

SURYAN R. M., AND J. T. HARVEY. 1999. Variability in reactions of Pacific harbor seals, *Phoca vitulina richardii*, to disturbance. Fisheries Bulletin 97:332-339.



Bill Jackson/FTCOLLINS/NPS  
02/06/2009 07:58 AM

To: Sarah Allen/PORE/NPS@NPS  
cc:  
bcc:  
Subject: Fw: Some Comments

Bill Jackson  
Chief, Water Resources Division  
Natural Resource Program Center  
National Park Service  
970-225-3503  
970-214-5870 (cell)

— Forwarded by Bill Jackson/FTCOLLINS/NPS on 02/06/2009 08:57 AM —



billjanej@  
02/06/2009 04:54 AM GMT

To: sarah\_allen@nps.gov  
cc: bill\_jackson@nps.gov  
Subject: Some Comments

Sarah:

As I figured, c3Portal is down again, which is why I'm replying from home email.

I've attached the Becker, Press, Allen "Response to Goodman" manuscript with a few pretty minor editorial suggestions in "track changes." Based upon my read of the Goodman January 18th memo to Susan Roberts (and the Lunny letter to Roberts), I think you've produced a very credible point-by-point rebuttal to most of the accusations. I also think the paper will be very useful to both Bert and Dan in getting perspective on these latest allegations.

Ex 5

I do have a couple of general comments, below:

As follow-up to my earlier question, I think it will be very important to figure out who you're trying to communicate this information to.

Ex 5

Ex 5

Basically, the Response to Goodman paper sticks to clarifying/explaining the facts, but it would need to be transmitted to the NAS under a cover letter that restates the NPS commitment to a credible independent review of what is scientifically known about the interactions between oyster mariculture and natural ecology of Drakes Estero, and other estuaries.

Ex 5

Ex 5

Ex 5

Ex 5

Yikes, it's late and I'm rambling. I'm not sure any of this is very useful, but it's time to push the send button. Let's talk tomorrow.

Bill



Goodman\_response\_Feb\_2009-DRAFT\_BJedits.doc



Don Neubacher/PORE/NPS  
02/05/2009 04:49 PM

To: Bill Jackson/FTCOLLINS/NPS@NPS  
cc: David Graber/SEKI/NPS@NPS, Sarah  
Allen/PORE/NPS@NPS  
bcc:  
Subject: Re: for review

Ex 5

final would have a cover. In this text, we cover both the misconduct allegations and clarify points regarding NPS research. Note the file to start with is on the far right.

Don

---

Don Neubacher  
Superintendent  
Point Reyes National Seashore  
Point Reyes Station, CA 94956

415-464-5101 (office)  
415-663-8132 (fax)

The National Park Service cares for special places saved by the American people so that all may experience our heritage.

Bill Jackson/FTCOLLINS/NPS



Bill  
Jackson/FTCOLLINS/NPS  
02/05/2009 04:30 PM

To: Sarah Allen/PORE/NPS  
cc: David Graber/SEKI/NPS@NPS, Don  
Neubacher/PORE/NPS@NPS  
Subject: Re: for review

Sarah: I've received the draft "Goodman Response" and 5 appendices and will start reading. A couple questions. Ex 5

Ex 5

Second, to whom is this being sent (and who will be sending it?); will there be some sort of cover or transmittal letter? Bill

Bill Jackson  
Chief, Water Resources Division  
Natural Resource Program Center  
National Park Service  
970-225-3503  
970-214-5870 (cell)

George  
Turnbull/OAKLAND/NPS  
04/29/2009 04:27 PM

To Holly Bundock/OAKLAND/NPS@NPS, Jon  
Jarvis/OAKLAND/NPS@NPS  
cc  
bcc  
Subject Fw: for internal review only--Goodman Response

— Forwarded by George Turnbull/OAKLAND/NPS on 04/29/2009 04:26 PM —



Don Neubacher/PORE/NPS  
02/05/2009 04:33 PM

To George Turnbull/OAKLAND/NPS@NPS, Jon  
Jarvis/OAKLAND/NPS@NPS  
cc  
Subject for internal review only--Goodman Response

We are finalizing our draft response to the new allegations. Any thoughts? We

Ex 5

Ex 5

Last file on right is the first one to read. Jon can we talk tomorrow?

Don

---

Don Neubacher  
Superintendent  
Point Reyes National Seashore  
Point Reyes Station, CA 94956

415-464-5101 (office)  
415-663-8132 (fax)

The National Park Service cares for special places saved by the American people so that all may experience our heritage.

— Forwarded by Don Neubacher/PORE/NPS on 02/05/2009 04:31 PM —



Sarah Allen/PORE/NPS  
02/05/2009 03:21 PM

To David Graber/SEKI/NPS@NPS, Bill  
Jackson/FTCOLLINS/NPS@NPS  
cc Don Neubacher/PORE/NPS@NPS  
Subject for review

See attached for review - You can call me anytime tonite or tomorrow - my home phone is

Ex 6

Ex 6



App-A\_tide\_response.doc App-B\_Becker\_NRC\_Sept\_2008\_slide 6.pdf App-C\_Becker\_MM5\_letter\_10-24-08.pdf App-D\_dist\_plots.new.pdf App-E\_Rat



**NPS Response to Goodman 01/18/2009 Letter to NRC.**

This document addresses the allegations and criticisms put forth in a 01/18/2009 letter from Dr. Corey Goodman to the National Research Council (NRC). Because the letter addresses many themes and frequently revisits themes in a non-linear fashion, we have reorganized what we believe are the salient points and address them in turn below. Each short response below is supported by additional referenced documents that are attached.

Ben Becker  
David Press  
Sarah Allen

**1. Regarding the allegation that April 29<sup>th</sup>, 2007 disturbance events must have been falsified.** The allegation of falsified data is based on several incorrect assumptions. Dr. Goodman assumes that the seals do not use the site when the sandbars are submerged, that seals are not disturbed by sources > 300 ft away, and that several volunteers and NPS staff separately <sup>Ex 5</sup> data on disturbances on several days of field observations. The NPS refutes these assumptions with actual data on seal behavior both at Drakes Estero and elsewhere.

- NPS has time stamped images of seals hauled out at similar falling tides during the 2008 *breeding* season in Drakes Estero. Seals (especially mothers with pups) regularly hover over sandbars before they are exposed by rising or falling tides, and this is a common behavior of harbor seals. Furthermore, the NPS documented disturbances were recorded during the *breeding* season when females and pups are commonly on these sandbars. Seals use these sandbars less frequently during the January “experiment” that Goodman cited. There is no basis for this allegation based on NPS images, the attached **Appendix A**, and seasonality of the “experiment”, and well known seal behavior. See **Appendix A** for analysis and images.
- Improbability of Disturbances - Dr. Goodman discounts the two April 29 disturbance events partly because they occurred so close together (50 minutes) that the boat would not have had enough time to return to the dock, pick up more bags, and then travel back to sandbar UEN. In fact, the Leiters never indicated that the boat returned to the dock and then came back between the disturbance events. Why Dr. Goodman made this assumption, and subsequently discounted the events as logistically impossible <sup>Ex 5</sup>
- DBOC Disturbance Records - Dr. Goodman incorrectly states that as of April 29, 2007 there were no data documenting disturbances to harbor seals by DBOC. In fact, the database contains unambiguous records from April 26, 2007 documenting disturbances at multiple sites. An additional disturbance occurred the previous year on May 6, 2006.

- 300 foot Protective Zone – Dr. Goodman states that DBOC agreed to a 300 foot protective zone, and therefore, implies that seals could not be disturbed at distances greater than 300 ft. The National Marine Fisheries Service generally recommends a distance of 300 ft (100m) for not disturbing marine mammals; however, there is ample information in the published literature that documents harbor seals being disturbed at greater distances. Johnson and Gutierrez (2007) document power boats disturbing harbor seals in Washington at an average distance of 625 ft (190.5 m) and as far as 1217 ft (371 m). Suryan and Harvey (1999) in another study in Washington document that 25% of disturbances to harbor seals occurred at a distance of 656-984 ft (200-300 m). Aircraft at high altitude also disturb harbor seals depending upon the amount of noise generated by the aircraft. It is not unreasonable that harbor seals in Drakes Estero were disturbed by boat noise generated at distances greater than 300 ft.
- Time of April 29 Count - Dr. Goodman used a different start time at which the volunteers conducted their full count of Drakes Estero from the data in the pinniped database. The database and datasheet clearly document that the data was collected at 2:15 PM. However, based on a note on the photocopied datasheet which Dr. Goodman Ex 5 decided that the data must have been collected at 3:15 PM. The note in its entirety reads, “poor tide – counted when could – had to leave at 3:15.” Dr. Goodman mistakenly concluded that the volunteers could not count the harbor seals until 3:15 PM, which falsely supported his claims that earlier disturbances could not have occurred.

**2. Regarding 2003 disturbance data changes:** During preparation for the first Marine Mammal Science (MMS) journal submission, Becker accidentally overlooked the 2003 disturbances. The data (one disturbance) was in the dataset that D. Press, the NPS data manager, provided to Becker preparing the first MMS manuscript. Becker realized his error of omission while preparing for the NRC presentation on Sept 4, 2008 and *therefore included an asterisk by the 2003 data with “possible disturbance” on the NRC presentation (see Appendix B)* Ex 5

Ex 5

**3. Regarding the allegation that NPS withheld information from the MMS editor, Dr. Goodman wrote:**

“In his (Becker’s) statement in the results section of his paper on lines 319-329, he told us one important fact that he did not tell the Editor in his cover letter when he wrote:

*“For example, there was still a significant positive correlation ... of disturbance rate with oyster harvest even when removing the 2006 disturbance, four of the 2007 disturbances (including two disturbances on one day in 2007 that the mariculture company challenged), and four of the 1996 disturbances (nine total) from the analysis”*

This allegation is absolutely **Ex 5** We sent the editor this sample paragraph before final re-acceptance of the paper. He approved, and it was included in the final paper. See attached email in **Appendix C** of this correspondence.

Furthermore, we addressed each one of Dr. Goodman's September 2008 criticisms directly to the Marine Mammal Science Editor, who in addition to reviewing them himself, passed them on to the Associate Editor and two original peer reviewers. Thus, the notion that we cherry picked data or misled the reviewers in any way is incorrect. In fact, we pointed the reviewers and editor to the Inspector General report, and the editor corresponded with the National Research Council and The California Department of Fish and Game. We also offered to the Marine Mammal Science Editor to review our raw data and NPS pinniped database **Ex 5** themselves **Ex 5** of Dr. Goodman's allegations **Ex 5**

Dr. Goodman also suggests that by performing the correlations without some of the disturbances to show their robustness to sample size, we are acknowledging that these disturbances are false. This is incorrect. After discussion with the MMS editor, we chose to include this statement to indicate to those who dispute some of the disturbances that the positive correlation still exists when more than one disturbance are not considered. Goodman had previously disputed only the NPS Trip Report disturbance observation as false and to demonstrate the robustness of the analyses to small sample size, we removed several disturbances.

**4. Regarding inclusion of the 1996-1999, and 2008 disturbance data in the second paper:** We simply incorporated more years at the urging of Dr. Goodman himself. There is no cherry picking as we included ALL data. The 1996-1999 data were not in the database upon preparation of the first MMS paper, but we were able to compile and access it for the second submission.

The NPS pinniped database indicates **four** disturbances in 1996. Due to Dr. Goodman's query, we have realized that we accidentally included two *potential* disturbances from 1996 in our calculations since they had a "disturbance = "Yes" entered in the database. In fact, there were 4 oyster related disturbances and 2 oyster related *potential* disturbances. We regret this error but it nonetheless does not impact the statistics or conclusions in any way. We will inform the editor of MMS of our error **Ex 5** **Ex 5** and seek his guidance on whether a correction is warranted.

1996 is still the year with highest rate of disturbance, and the significance and correlation of the oyster harvest-disturbance rate remains exactly the same since we used ranks tests for the analysis. See **Appendix D** for original and new plots. Thus, Dr. Goodman's allegation that we purposely increased the number of disturbances in 1996 to "help" our statistics or create a more dramatic graph is completely inconsistent with the facts and the data.

We assume Dr. Goodman only counts two disturbances in 1996 (rather than four) because he characterizes two of the motorboat related disturbances as non-oyster related while we consider these to be oyster related. As is well known, only oyster company motor boats are allowed in the Estero without special permission and this closure has been in effect since the early 1990s. Goodman's statement that many fishing and recreational motorboats enter the estero is not supported by park records including law enforcement records, harbor seal monitoring records and park staff observations.

Further, cherry picking is again alleged because we did not analyze other disturbance sources in the estero (other than to note the relative frequency of human related disturbance is higher in the lower estero, since those lower estero haul-out sites are attached to the mainland). On November XX, we provided the NRC with justification for solely analyzing the mariculture related disturbances: See **Appendix E**.

**5. Regarding the allegation of not following NPS and our stated QA/QC protocols:** Dr. Goodman makes several assumptions regarding NPS protocols which are incorrect.

- The MMS paper clearly states that *count* data were filtered for date, observer experience, tide and weather. However, the disturbance data were not subject to these criteria. Disturbances can be recorded at any tide, weather, or observer experience level.

Ex 5  
Ex 5



In addition, for the purposes of the Becker et al. paper, we limited the count data we used to surveys collected on days with a 2.0 ft tide or less. For our analyses, we extracted the maximum count per survey, and we checked to ensure that the count occurred at a reasonable time in relation to the low tide time.

- Dr. Goodman has misunderstood NPS procedures for reviewing harbor seal data prior to analysis. All data that we receive from volunteers is entered into the database, and prior to analyzing and reporting the data, we review the *count* data to see if any of the surveys were of potentially poor quality and should be discarded from our analysis. Records are never discarded from the database, which remain important NPS records.

Each survey is evaluated and assigned a "HighQualityCount?" value of "yes" or "no". A survey may be of poor quality and assigned a value of "no" for the following reasons:

- poor visibility

- not all subsites were surveyed
  - poor observer quality of *all* survey participants
  - other comments noted on the datasheet, especially in regards to weather conditions
- The Volunteers' Experience - Dr. Goodman asserted that the volunteers (Mr. and Mrs. Leites) who surveyed on April 29, 2007 did not have more than one year of survey experience and that their first survey was on March 24, 2007. This is in fact the date of their first survey in *Drakes Estero*. The Leites, however, began volunteering with our program in April of 2006, spending most of their time at Bolinas Lagoon and Duxbury Reef. In addition, March 24 was not their first survey of the 2007 monitoring season. The databases that store these surveys were delivered to Dr. Goodman in his FOIA requests dated August 2007 and January 2008. In short, the Leites did meet our criteria of having at least one year of prior experience in our program before including their data for analysis.
  - A key point that Dr. Goodman misunderstands is that although we review each disturbance record in the database for accuracy against the paper data sheet, we do not enforce the additional, above QA/QC procedures on the disturbance data. Recording and cataloging disturbances is essential to managing harbor seals within Point Reyes National Seashore. We have confidence that our first year observers, all of which must attend our trainings, have the ability to observe, for example, a motorboat flushing harbor seals off a sandbar. Furthermore, it is insignificant whether or not that disturbance occurs in poor weather conditions or at a high or low tide.

**6. Regarding the allegation that the MMS paper title is incorrect.** The paper clearly models data from 1997-2007, as the title describes. We include disturbance data from 1996 and 2008.

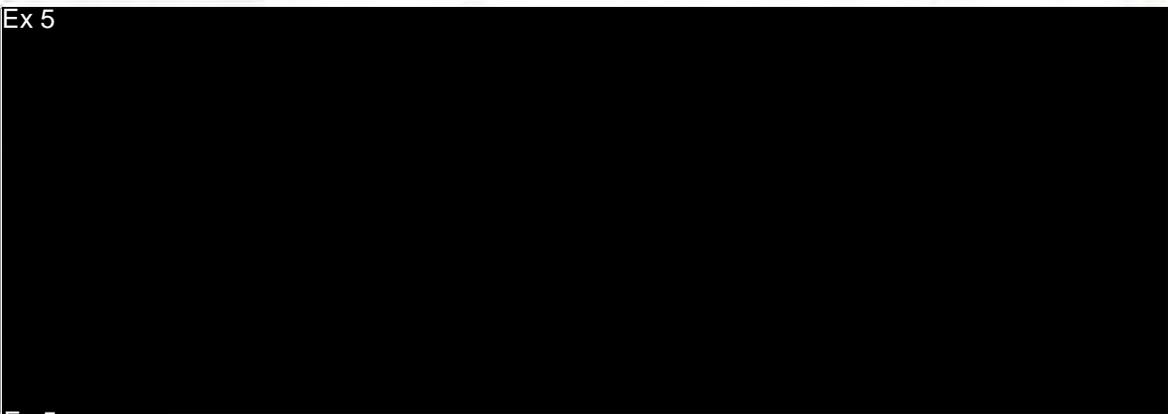
Ex 5  
Ex 5 In fact, eliminating disturbance data that we had available (e.g., 1996 and 2008) would actually be cherry picking. It is difficult to see how including all available data is cherry picking.

**7. Regarding use of a Spearman ranks test to test for correlation between disturbance rate and oyster harvest:**

Ex 5  
Ex 5

In closing, we note that in previous iterations of his statements, Dr. Goodman heavily critiqued our statistical modeling techniques, which are all standard modern practice. His critiques were closely reviewed by editors and peer reviewers at Marine Mammal Science and flatly rejected. He now primarily focuses on data handling and allegations of falsified data that were independently collected by several different volunteers and NPS staff.

Ex 5



Ex 5

Lastly, during the preparation of the MMS paper and NRC presentations, the database we were working with was held by several different groups, including Dr. Goodman and the National Research Council. We also offered it to the editor of Marine Mammal Science. Thus, there is no basis for the allegation that we are manipulating data; the raw data is available for these groups to see and arrive at their own conclusions on our analyses and interpretation.

JOINSON, A., AND A. ACEVEDOGUTIERREZ. 2007. Regulation compliance by vessels and disturbance of harbor seals (*Phoca vitulina*). *Canadian Journal of Zoology* 85:290294.

SURYAN R. M., AND J. T. HARVEY. 1999. Variability in reactions of Pacific harbor seals, *Phoca vitulina richardii*, to disturbance. *Fisheries Bulletin* 97:332–339.

11/12/2008

To: National Research Council, Panel of Mariculture in Drakes Estero.

From: Ben Becker, David Press, Sarah Allen; Point Reyes National Seashore.

**Re: Rationale for *not* modeling disturbances and counts in the entire Drakes Estero.**

Becker, Press and Allen (MMS, in press) only modeled and considered disturbances in the upper estero (near oyster harvest activities) for the following reasons.

1. Subsites A, AI, OB, and UEN are the primary pupping sites for the Estero (see Figure 1). Thus, with one (and perhaps 2, OB and UEN) important pupping subsite potentially impacted by oyster harvest activities, this merited further investigation. Processes at subsite A were clearly related to attachment to the mainland. AI was increasing (perhaps due to displacement from other sites such as A or others).
2. Plots of all 8 subsites in Drakes Estero from 1997 – 2007 indicate that the only subsites which experienced a significant decline since 2004 were subsites OB, UEF, and A (Figs 1-3). Subsite A was clearly reduced after attachment to the mainland in or around 2004 which resulted in several coyote predation events. Subsites OB and UEF had no other apparent changes other than proximity to increased oyster activities/harvest. DEM had a decline in 2006-2007, but had high inter-annual variation during the entire time series. Variation at DEM was likely because of changes in size and proximity to mainland due to wave action and tides at the mouth of the estero. Subsite L increased over time (especially in adult use), potentially related to increased visitor education on avoiding seal disturbance at the Limantour Beach access.
3. There was a clear and significant (proportions test or Fisher's exact test) increase in mariculture related disturbances in the upper estero (OB, UEF, UEN). During March-May of 2000-2004, anthropogenic, non-airplane disturbances were limited to one kayak, one clammer, and one oyster related. Then from March-May, 2005-2007, all anthropogenic, non-airplane disturbances, were related to mariculture with one in 2006 and six in 2007. This increase in mariculture related disturbances coincided with a decrease in adult and pups seals counts at subsite OB (and UEF), which warranted further investigation.
4. It is essential to model density-dependence. However, if considering all subsites, then it would not be possible to use the lower-middle estero as a control for density-dependence since all counts could not be assumed independent of the other seven sites (seals do of course move around and a loss at one site would likely result in an increase at another site). Furthermore, other regional colony data prior to 2000 had not been fully compiled before preparation of the manuscript. Nonetheless, local density-dependence (lower-middle estero) is more desirable since it more likely to reflect local processes in the estero because it (1) eliminates other confounding factors such as disturbance effects at other colonies, and (2) is closer, more similar habitat.

11/12/2008

5. Modeling all sites and linking to mariculture would be a form of data dredging (several reviewers indicated this). We chose instead to follow an *a priori* multiple competing hypotheses approach.
6. Modeling disturbances without *a priori* hypotheses can be misleading because disturbance events require both a disturbance source *and* the presence of seals to disturb. This is illustrated clearly at subsite A: as the island attached to the mainland and seals began to abandon the subsite after 2004, disturbances also decreased.

*Three figures follow*

Fig 1. Mean (SE) seal **pups** at subsites in Drakes Estero during April 15 – May 15 of each year from 1997 - 2007.

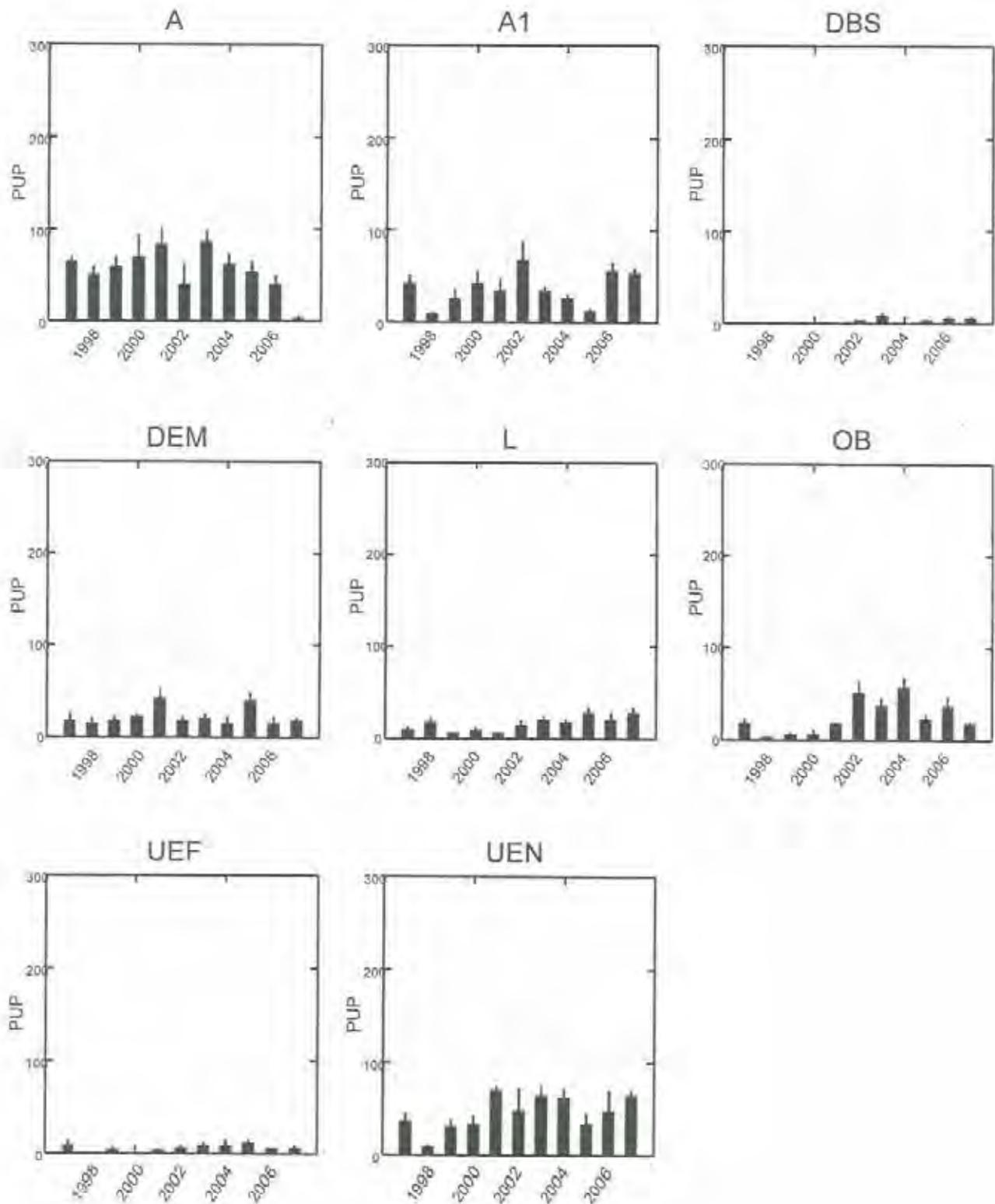


Fig. 2. Mean (SE) **adult** seals at subsites in Drakes Estero during April 15 – May 15 of each year from 1997 - 2007.

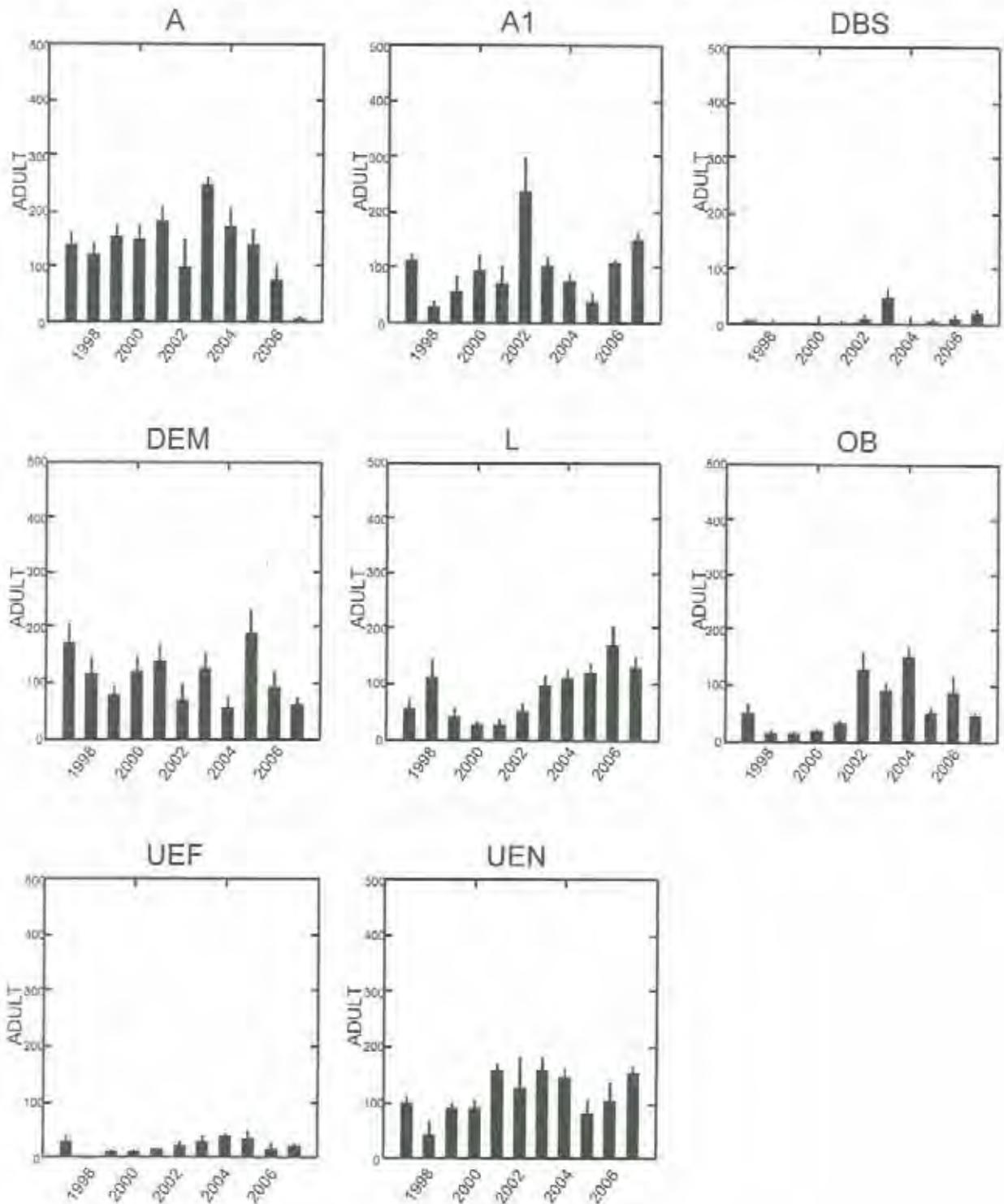
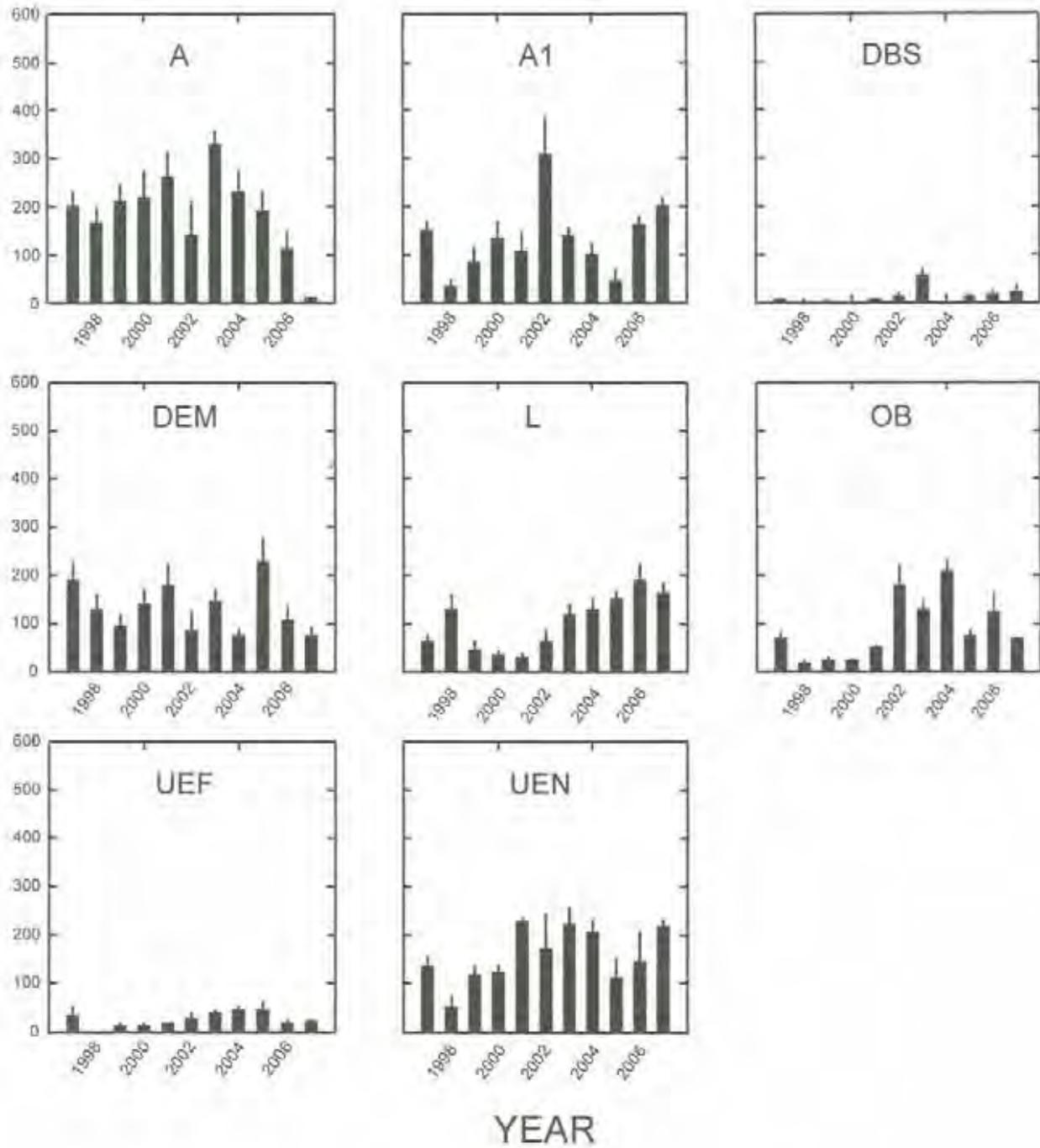
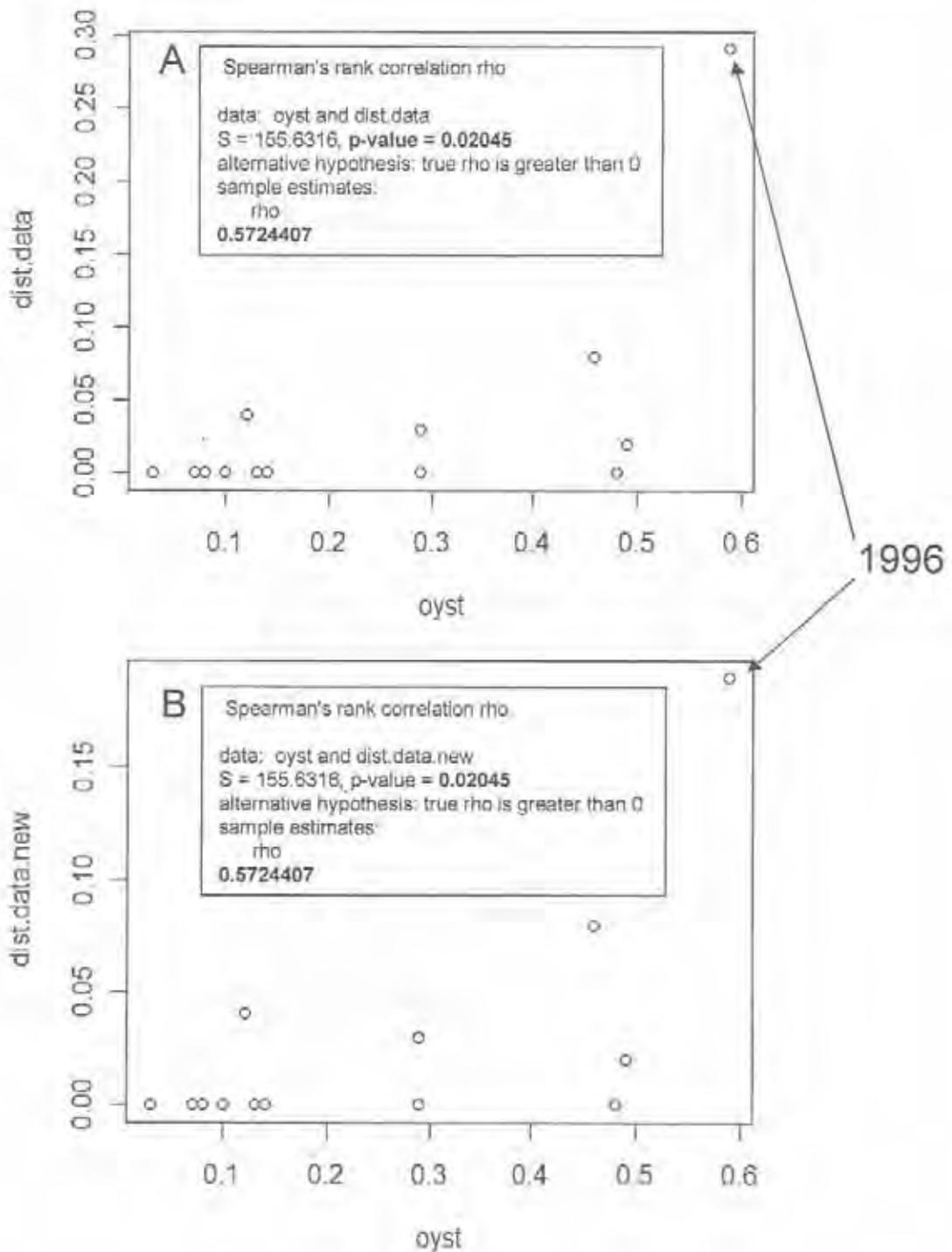


Fig 3. Mean (SE) **total** seals at subsites in Drakes Estero during April 15 – May 15 of each year from 1997 - 2007.



Appendix D. (A) Original plot used in MMS paper with 6 disturbances in 1996 and (B) corrected plot with 4 disturbances in 1996. Note that 1996 is still by far the highest point, which is why the statistics have *no difference* between datasets. Note that the y-axis scale changes between plots. In the first version (MMS paper), we accidentally counted two *potential* disturbances as *actual* disturbances. "Oyst" is annual lbs. oysters harvested  $\times 10^{-6}$ . See text for details.



Dear Dr. Boness,

Below is an outline of the substantive changes to ms #2668 discussed with either you or proposed by us and accepted by the reviewers. Please note that I used the previous MMS copy edited version as a starting point, hence the formatting style. Because of this, footnotes appear at the end of the document as endnotes. I have listed the most substantive changes in bold.

**Introduction:**

No substantive changes

**Methods:**

1. We now use the updated oyster harvest value for 2007.
2. Lines 174-185: We now include disturbance data for 1996 – 2008. Previous paper only had 2000-2007. Count data modeled for 1997-2007 (as before) but we discuss 1996 and 2008 data in the discussion.
3. Lines 207 – 212: Description of new tests used to analyze disturbance data as proposed in previous MMS correspondence.
4. Lines 219-240: Clarified data handling.
5. Lines 257-265: Clarified density dependence data used in models.
6. Lines 266-275: Description of how we look at density dependence on a daily basis but also investigate effect on an annual mean basis. Description of how we model oyster harvest in the same year, but also investigate 1-year lag.
7. Lines 303-307: Description of regression tree methods.

**Results:**

1. Lines 312-318: Shortened first paragraph
2. Lines 319-329: Results of *oyster harvest vs. disturbance* correlation and rank tests. These are all now based on disturbance *rate* rather than *frequency*. We illustrate here that omitting up to nine of the disturbances (including the one in 2006 and 2/3 of those 2007) still would result in a significant increase in disturbance with increase in oyster harvest. Also see Figure 2B. We also note that this includes on lines 325-326: “including two disturbances on one day in 2007 that the mariculture company challenged”. Please let us know if this is OK or if you have a different idea for this statement. Alternatively, we could leave the parenthetical statement out and just leave the part that illustrates dropping many of the disturbance events still results in a significant relationship.
3. Lines 333-351: New GLM results using updated 2007 oyster harvest value and no time lag for oyster harvest. All model rankings are similar to previous paper.
4. Lines 355-364: GLM analyses also redone to test 1-year vs no year lag effects of oyster harvest, and using density dependence as a daily or annual value. All results were robust to these different approaches with Oyster always being

important in the best models. We focus on same year oyster harvest values, though.

5. Lines 366-373: UEN best model (although weak fit) includes oyster harvest.
6. Lines 374-381: We now report a regression tree that corroborates GLM models. Tree shows lower counts with higher oyster harvest. This replaces prior 2002-2004 to 2005-2007 2-sample tests (t-test, Wilcoxon) comparisons in previous version.

#### Discussion:

1. Shortened first paragraph.
2. Lines 463-476: Discussion of potential reasons why lower performance of predictive model (OB model predicting UEF) when oyster harvest is high.
3. Lines 527-532: Discussion of middle-lower estero counts related to density dependent effects at upper subsites.
4. Lines 546-553: Presentation of unmodeled 1996 count data at OB and how it is low during the highest oyster harvest and the highest disturbance rate during the study period.
5. **Lines 554-577: Discussion of how small increase in 2008 subsite OB count data is consistent with restricted mariculture activity near the subsite due to a new (for 2008) California Coastal Commission guideline, and how disturbances subsequently dropped to only 1 in that year. We also suggest that this operational shift may weaken the simple use of "oyster harvest" as a proxy for modeling counts in the upper estero beyond 2007. Nonetheless, the modeling for 1997-2007 is unaffected.**

#### References:

1. Added Allen *et al.* 1989 (ENSO effects on seals) and Bejder *et al.* 2006 (Disturbance causing local redistribution of Dolphins).

#### Tables:

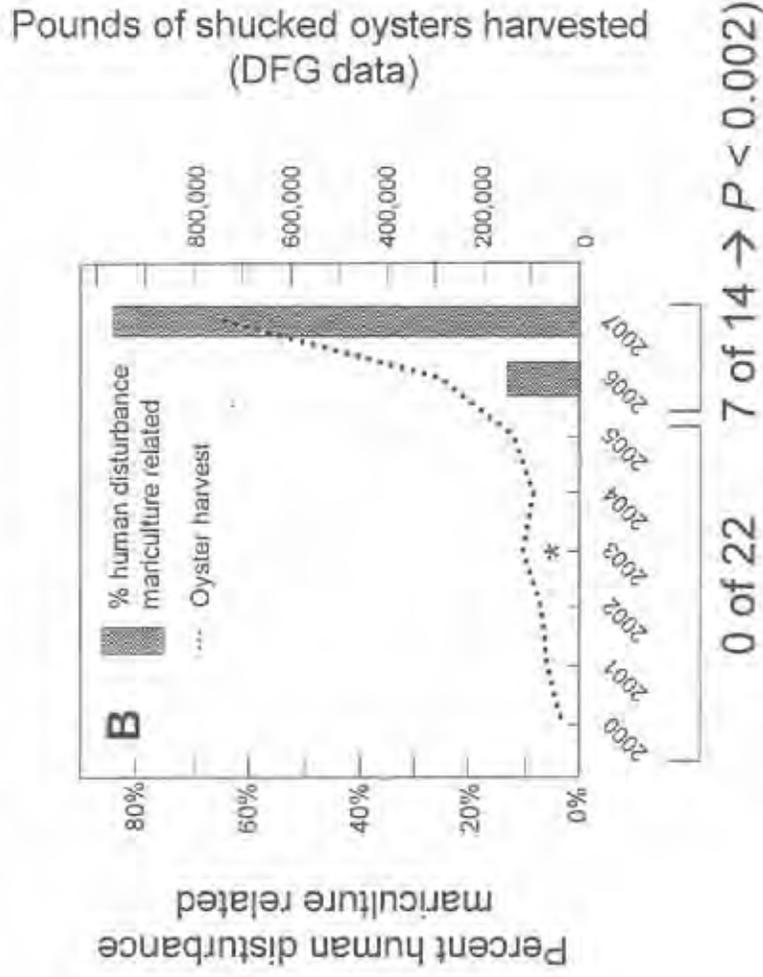
1. We have removed table 1, as figure 2B now illustrates these patterns and tests. We indicate in the results that human disturbance rates are higher in middle-lower estero.
2. Table 1 (Table 2 in previous version): updated with all new models, rankings are essentially the same.
3. Table 2 (Table 3 in previous version): updated with new best model coefficients.

#### Figures:

1. Figure 2A: Now has corrected 2007 oyster harvest value.
2. Figure 2B: New, as proposed to reviewers in previous MMS correspondence. Replaces previous figure 2A.
3. Figure 3A: Similar to previous figure 3A, but is a scatter plot rather than a bar chart.
4. Figure 4: Regression tree replaces bar chart showing recent declines at OB. The new model is described in the text.

5. Figure 5: Drakes Estero Panel has been redone. There was a scaling problem (software bug) in the previous version when drawing multiple panels at the same scale that showed ~15-20% fewer seals than reality at only drakes estero. We also added black bars to the Drakes Estero panel to indicate count pattern for the middle-lower estero used for density-dependence calculations.

# Increase in percentage of human-related disturbance in upper estero (OB, UEN, UEF) due to mariculture: 2000 - 2007



- High statistical power ( $1-\beta > 0.91$  at  $\alpha = 0.05$ )
- No mariculture related disturbances in middle-lower estero
- Human disturbance is less frequent in upper estero (~1-2/subsite/yr) than the middle-lower estero (~5 subsite/yr)

\* Possibly one disturbance in 2003

DRAFT .. DRAFT  
**Pre-decisional document**

Appendix A. On January 18, 2009, Dr. Corey Goodman submitted a document to the National Academy of Sciences entitled "New Information Shows that the National Park Service Committed Scientific Misconduct in the Documents it Presented to Your Panel".

Dr. Goodman devotes much of this document to discrediting harbor seal data collected in Drakes Estero on April 29, 2007. On this date, volunteers noted two disturbances by Drakes Bay Oyster Company (DBOC) when workers dropped oyster bags at a growing site from their motorboat. Dr. Goodman challenged the validity of the April 29 survey based in part on the tide chart for that day and subsequent analysis of tidal patterns in Drakes Estero. Dr. Goodman concluded that no such disturbances could have occurred on April 29, 2007 because the tide was too high.

The April 29 survey began at 9:30 AM and concluded at 3:15 PM, as noted in the comments on the datasheet for that day. The harbor seal monitoring program standardizes its tides to San Francisco (Golden Gate Bridge), and the low tide for April 29 was 1.46 ft at 4:25 PM. The first DBOC disturbance occurred at 12:50 PM from DBOC's motorboat. The observers noted that at sandbar UEN, "mom and pup flushed when boat accelerated toward Bull Point from N. end of OB channel after throwing out bags." The second DBOC disturbance, again at sandbar UEN, occurred at 1:40 PM when the "boat returned, threw more bags, left again." The observers conducted the first and only full count of the harbor seals in Drakes Estero at 2:15 PM, documenting a total of 751 harbor seals. The events of the April 29 survey are summarized in Table 1.

Table 1. Summary of significant events on April 29, 2007. Low tide is standardized to San Francisco (Golden Gate Bridge).

<b>Time</b>	<b>Time before low tide</b>	<b>Survey Event</b>
9:30 AM	6 h 55 m	Start of observations.
12:50 PM	3 h 35 m	First DBOC disturbance at sandbar UEN.
1:40 PM	2 h 45 m	Second DBOC disturbance at sandbar UEN.
2:15 PM	2 h 10 m	Complete harbor seal count.
3:15 PM	1 h 10 m	End of observations.

DBOC attempted to better understand how the tides may have looked on April 29, 2007 by asking John Hulls of the Point Reyes Light newspaper to conduct an experiment. Mr. Hulls selected tides on January 1 and 2, 2009 and measured the high tide at sandbar OB to determine that there was an approximate 1.3 hr lag compared to the Point Reyes NOAA buoy tide chart. More importantly, Mr. Hulls measured the tidal heights at which the very highest points on UEN and OB first rose above the water, which were at +3.0 ft and +2.0 ft, respectively. Based on Mr. Hulls' observations in January 2009, Dr. Goodman went back in time to April 2007 and concluded that the sandbars in Drakes Estero must have been underwater at the time of the April 29 disturbance events.

Ex 5

Dr. Goodman and Mr. Hulls missed several important points in their attempts to model the tides at subsites OB and UEN in Drakes Estero. First, two dates is a very small sample size from which to develop these types of tidal predictions. Second, coastal winds and barometric pressure, which may affect tidal water level, were not taken into account. Lastly, it is incorrect to assume that the sandbar heights and configurations did not change between 2007 and 2009. The sandbars naturally shift on a seasonal and, annual basis, and larger scale shifts may dominate for several years.

Tidal modeling and developing tidal predictions is a fairly sophisticated science that must incorporate a variety of atmospheric, hydrographic and oceanographic driving forces. The NPS relies on our colleagues at NOAA, USGS, and university experts for this type of guidance. We find Mr. Hulls' experiment without merit and find it unreasonable for Dr. Goodman to discredit the April 29, 2007 survey based on the incomplete tidal modeling of Mr. Hulls.

The NPS has conducted its own review of the April 29, 2007 survey and associated tides because of the questions raised by Dr. Goodman. However, the NPS review of the survey took a different approach than Dr. Goodman and Mr. Hulls. We identified six dates during the peak breeding season in 2008 that closely match the tide chart for the April 29 survey. Table 2 shows that the dates selected (April 17-19, 2008 and May 2-4, 2008) more closely match April 29, 2007 than the tides selected by Mr. Hulls for study on January 1 and 2, 2009. Harbor seal use of Drakes Estero, particularly in the middle estero where the April 29 disturbances occurred, is limited in January, and we felt that it was more appropriate to select dates during the harbor seal breeding season for comparison. Harbor seals haul out more often and for longer time periods during the breeding and molt seasons from March 1 to July 31.

Table 2. Low tide data for April 29, 2007 and a series of dates selected for study by NPS and DBOC. Tides are standardized to San Francisco (Golden Gate Bridge).

Date	Low Tide Time	Low Tide Height	Type
April 29, 2007	4:25 PM	1.46 ft	Original Survey
April 17, 2008	4:22 PM	0.89 ft	This Study
April 18, 2008	4:56 PM	1.28 ft	This Study
April 19, 2008	5:29 PM	1.68 ft	This Study
May 2, 2008	3:30 PM	1.01 ft	This Study
May 3, 2008	4:13 PM	1.37 ft	This Study
May 4, 2008	4:56 PM	1.74 ft	This Study
January 1, 2009	8:16 AM	2.82 ft	DBOC Study
January 2, 2009	9:17 AM	2.51 ft	DBOC Study

For the six dates selected by NPS for review (Table 2), the NPS examined date and time stamped photographs taken of Drakes Estero by remote camera. The remote camera was on-site at Drakes Estero for the majority of the 2008 breeding season, capturing images

every minute from around 7 AM to 7 PM. The camera view encompassed the “lateral” channel with sandbar OB in the foreground.

Examination of the photo series for the selected dates shows that for a low tide similar to that on April 29, 2007, the OB sandbar becomes exposed at the low tide between approximately 3.5 and 2.5 hours prior to the low tide for San Francisco (Table 3).

Table 3. Time that harbor seals are first observed at sandbar OB and time that OB is just exposed by the falling low tide on six dates chosen for review by NPS. The time before the low tide is included in parentheses. Tides are standardized to San Francisco (Golden Gate Bridge).

<b>Date</b>	<b>Time of First Harbor Seals</b>	<b>Time Sandbar First Exposed</b>	<b>Low Tide Time</b>	<b>Low Tide Height</b>
April 17, 2008	12:23 PM (3h 59m)	1:17 PM (3h 5m)	4:22 PM	0.89 ft
April 18, 2008	2:01 PM (2h 55m)	2:15 PM (2h 41m)	4:56 PM	1.28 ft
April 19, 2008	1:43 PM (3h 46m)	2:25 PM (3h 4m)	5:29 PM	1.68 ft
May 2, 2008	11:52 AM (3h 38m)	11:58 AM (3h 32m)	3:30 PM	1.01 ft
May 3, 2008	12:54 PM (3h 19m)	13:05 PM (3h 8m)	4:13 PM	1.37 ft
May 4, 2008	2:18 PM (2h 38m)	2:40 PM (2h 16m)	4:56 PM	1.74 ft

Therefore, the NPS concludes that subsite UEN may have been slightly underwater at the time this subsite was first disturbed at 12:50 PM on April 29, 2007, which occurred about 3.5 hours before the low tide (Table 1). However, if we were to follow the logic of Dr. Goodman and Mr. Hulls, who conclude that the UEN sits 1 ft higher than OB, then based on our photographs, subsite UEN would have been well exposed by the time of the first disturbance.

In regards to harbor seal use of the sandbars, on each of the six dates selected by the NPS, harbor seals are clearly seen in the photographs using the OB sandbar *before* the sandbar is actually exposed by the low tide (Table 3). On April 17, 2008, for example, seals were present on the sandbar 40 minutes before it was first exposed by the low tide. By the time the OB sandbar was just exposed, up to a dozen harbor seals could already be seen resting on the sandbar. If Mr. Hulls had conducted his tidal experiment in Drakes Estero at the correct time of year, he too would likely have observed this pattern of harbor seal behavior and drawn different conclusions about the validity of the April 29 disturbances.

In summary, although our review indicates that the UEN sandbar may have been underwater at 12:50 PM on April 29, 2007, the disturbance record for that day remains reliable based on our review of tidal data and seal behavior at that site. Although Dr. Goodman insists that “swimming harbor seals cannot be flushed off of a sandbar that is underwater”, we have photographic documentation to the contrary. By the time the second DBOC disturbance occurred on April 29, 2007 at 1:40 PM and the complete harbor seal count occurred at 2:15 PM, the sandbars were, without question, well exposed.

To illustrate the findings of our inquiry, Figures 1-3 depict sandbar exposure and harbor seal presence at sandbar OB on a falling tide. Although we do not have similar images taken of sandbar UEN, we believe that these photographs provide solid evidence that the April 29, 2007 survey was accurate.



Figure 1. Harbor seals present on sandbar OB prior to exposure of the sandbar to the falling tide. Photograph taken at 12:47 PM on April 17, 2008, 3 hours and 35 minutes

prior to a low tide of 0.89 ft at San Francisco. The first disturbance on April 29, 2007 also occurred 3 hours and 35 minutes before the low tide .



Figure 2. Harbor seals present on sandbar OB on the falling tide. Note paired heads of seals which are likely females with pups. Photograph taken at 2:44 PM on April 19, 2008, 2 hours and 45 minutes prior to a low tide of 1.68 ft at San Francisco. The second disturbance on April 29, 2007 also occurred 2 hours and 45 minutes before the low tide.



Figure 3. Harbor seals present on sandbar OB on the falling tide. Photograph taken at 1:20 PM on May 2, 2008, 2 hours and 10 minutes prior to a low tide of 1.01 ft at San Francisco. The full count on April 29, 2007 also occurred 2 hours and 10 minutes before the low tide.

### Major points on the use of wildlife cameras at Point Reyes National Seashore

- Wildlife observation cameras are not new to Point Reyes National Seashore: the park has used them over the years for inventory and monitoring, research, and management. This has included cameras on harbor seals, elephant seals, elk, and wildlife in general. The park also used remote cameras extensively after the Vision Fire in 1995, and most recently on the Giacomini Wetland restoration project.
- Cameras are a common tool used in wildlife management/study everywhere. At least 30 parks use cameras. For example, at Santa Monica Mountains National Recreation Area, the animal ecology team uses around 60-70 infrared cameras to detect and monitor wildlife while at Yellowstone National Park, six cameras were used last winter to collect data on bison movement along travel corridors. Use of cameras in parks is widespread.
- The Drakes Estero cameras were put out to understand why there was a drop in harbor seal numbers at the OB site and UEF site (these are seal pupping sites within Drakes Estero) and to document if there were disturbances that might help explain the drop in numbers.
- The cameras - in Drakes Estero and elsewhere - are camouflaged to protect against vandalism, theft, and accidental disturbance by cattle, wildlife, birds, etc.

#### Timeline of camera use

- 2010: there is one camera at Drakes Estero right now being used by a student from San Francisco State University for her Master's thesis focused on harbor seals and disturbance. Note: this camera is no longer collecting data Ex 5  
Ex 5
- 2009: one camera focused on the OB haul out site
- 2008: there were two cameras at Drakes Estero, aimed at seal haul out sites in the upper estero, referred to as OB and UEF (see attached map) - these are two major harbor seal haul out areas that have shown the largest declines in seal numbers. These declines are documented in two peer reviewed scientific papers; one published in 2009, one to be published in 2010.
- 2007: there was one camera focused primarily on the OB site.
- Pre-2007/late 1990's: cameras, both still and video, have been used at Drakes Estero and other sites within the park for wildlife monitoring and inventory, and for other scientific purposes.
- The allegations that these cameras were not focused on haul out sites is incorrect - the images have seal haul out sites in the foreground; they can show, when present, boats in the

background - any boat would show up, kayak, oyster boat, or whatever is out there. Attached is an image that shows a kayak. This camera - when functioning - would pick up any disturbance.

- The cameras were active during the breeding season, generally February-July. They are not active the other times of the year.
- Images from the cameras have not yet been analyzed in any depth - a handful of images have been used publicly: in the Marine Mammal Commission meeting that happened at the park in February 2010, and in a briefing statement prepared at the park this time last year (May 2009), in response to Dr. Corey Goodman's letter to the National Research Council.
- An additional note: the briefing statement, which references the cameras, has been posted since at least January 29, 2010 on the publicly accessible Marine Mammal Commission web site. The NPS provided the May 2009 briefing statement to the Marine Mammal Commission on December 23, 2009.