



United States Department of the Interior



NATIONAL PARK SERVICE
Pacific West Region
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IN REPLY REFER TO:

A7221 (PWR-RD)

SEP 24 2008

Susan Roberts, Ph.D.
Director, Ocean Studies Board
The National Academies
500 5th St. NW, Keck 607
Washington, DC 20001

Re: NRC Drakes Estero Mariculture Panel

Dear Dr. Roberts:

Enclosed is a brief clarification in response to Dr. Corey Goodman's statements that the NPS was referring to harbor seal count data from subsite A during 2005 – 2007 in Drakes Estero. The clarification explains (1) how the NPS derived the 80% decline figure, (2) that the data were indeed from subsite OB, (3) that the data refer to percent changes from 2004 – 2007, and (4) that the NPS never used data from subsite A. Please let me know if you would like any further information.

Thank you for your time,

FOR 

Jonathan B. Jarvis
Regional Director, Pacific West Region

NPS Background on derivation of 80% decline of harbor seals at subsite OB in Drakes Estero

Prepared for the National Research Council

National Park Service - September 24, 2008

During the National Academy meeting regarding Drakes Estero and aquaculture on September 4th 2008, Dr. Goodman asserted that the National Park Service (NPS) was misusing data regarding an 80% decline of harbor seals at a subsite in Drakes Estero. The basis for his statement was that only one subsite in Drakes Estero (subsite A) declined 80% based on his personal analyses of the NPS database. We will explain in detail below why we do not agree with Dr. Goodman's statement. As we explained, NPS relied on the best available information at the time to make the statement of an 80% decline at another subsite, Oyster Bar – denoted "OB", (not subsite A) between 2004 and 2007.

The NPS presented the following statements:

"One area where 250 seals nursed more than 100 pups two years ago, have around 50 total seals including around 25 pups in 2007, an 80% decline." – Park News Document on NPS website May 8, 2007.

"In 2007, oyster bags and disturbance have reduced one sub colony by 80%." - Park News Document on NPS website May 11, 2007.

"... disturbance and placement of bags on the nursery area has caused an 80% reduction in the seals dropping to around 35 this last Saturday." – Testimony to the Marin County Board of Supervisors on May 8, 2007.

NPS was using a baseline year of 2004 when referring to "two years ago." This was to differentiate before and after Drakes Bay Oyster Company's two years of ownership. Furthermore, at the time of testimony and reports, NPS had complete (full pupping season) data only up through 2006, thus, two years prior was indeed 2004. While we agree that the statements could have been clearer, NPS was still referring to a baseline year of 2004. NPS selected 2004 as a baseline year because it was prior to the period when oyster harvest began to increase from a period of low production for many years. Beginning in 2005, DBOC began increasing production of oysters and so 2005 would not have been an appropriate baseline for comparison.

The NPS stated that a subsite within Drakes Estero where seals haul out and not the entire Drakes Estero colony was impacted by oyster activity in 2007. This subsite is OB, one of three in the upper estero, and consists of two island sandbars exposed at medium tides that parallel a lateral channel. Seals haul out to give birth, nurse and rest on the island sandbars along the lateral channel. The site is preferred by female seals with pups

because it is detached from the mainland and away from predators and people. The oyster company had placed many bags on the sandbars along the lateral channel since they took over in 2005. There were very few oyster bags on the sand bars along this lateral channel for many years prior to 2005.

Subsite A, in contrast, is located in the middle of the estero, outside the lease and away from the oyster operation. Subsite A was an island sandbar that became attached to the mainland intermittently beginning in 2004. While subsite A data do show dramatic declines between 2005 and 2007, subsite data at OB were the subject of NPS statements comparing 2004 and 2007 because it was within the lease and because of increased oyster production there.

The decline observed at subsite OB was based on a comparison of the maximum counts of seals at the site in 2004 (the baseline year) and 2007. Harbor seal numbers during the pupping season typically peak with a bell-shaped curve around May 1. A peak maximum count at OB in 2007 was observed on April 23, followed by very low numbers on three surveys through May 3. NPS specifically reviewed all available datasheets up through May 3 and therefore the maximum peak count of April 23 was used when preparing the testimony and reports. Previous peak dates for the OB subsite for years 1997 – 2006 were: 4/26, 5/10, 5/4, 4/18, 4/29, 4/30, 5/3, 5/1, 5/3, and 5/6, respectively. The 80% decline stated by NPS in testimony, therefore, refers to the declines seen at OB between the observed pupping peak of 2004 and that of formal observations through the peak as of May 3, 2007.

Based on a preliminary review of the data up through May 3, 2007, the maximum count at subsite OB on May 1, 2004 was 251 adults and 108 pups compared to 65 adults and 19 pups in 2007, a decline of 74% for adults, 82% for pups, and 77% overall. The NPS statement of “*250 seals nursed more than 100 pups*” was based on this maximum count. The reference in testimony to “*around 50 total seals including around 25 pups in 2007*” refers to the peak count of 65 adults and 19 pups at subsite OB through May 3, 2007. The NPS statement in testimony “*down to around 35 this past Saturday*” was based on an informal observation by Dr. Allen on Saturday, May 5, 2007 to confirm that the seal counts were still low while she prepared testimony. The informal observation was made from Estero Trail (not the standard observation site for seal surveys), focused only on the sand bars in the upper estero, and therefore, was not considered a survey.

The park assumed that the peak pup count for the season had been reached on April 23, 2007 based on the subsequent low numbers later that week. However, the actual peak count for the season occurred on May 4, after very low numbers had been observed for several preceding days. This count occurred later than expected and did not fit the typical bell-shaped curve, and the data were not received before preparation of the testimony on May 8. With a volunteer monitoring program, data sheets are not necessarily received or entered into the database on the day of the survey. The dramatic decline in counts observed after April 23 and through May 3 in 2007 prompted the NPS to conclude that the 2007 peak had been reached, particularly since the decline also coincided with mariculture related disturbance events on April 26 and 29. Nevertheless, using either

maximum count shows a significant decline in the use of OB during the 2007 breeding season compared to 2004. A comparison of the maximum peak of 2004 with that of the later 2007 peak shows a decline of 53% for adults, 65% for pups and 56% overall.

In a more recent and detailed analysis that was submitted for publication in a peer-reviewed scientific journal (*Marine Mammal Science*), a comparison of mean counts at subsite OB during 2002-2004 (prior to increasing oyster harvest activities) with 2005-2007 (during increasing oyster harvest activities) indicates a 57% decline in use by adults and a 54% decline by pups at subsite OB.

In summary, NPS analyzed only the data for subsite OB for the May 8th 2007 testimony, which is within the aquaculture lease and where a large increase in oyster production occurred after DBOC took over the lease in 2005. NPS used 2004 as the baseline year for counts of seals at OB when comparing pre and post oyster production increases. The decline in use of seals on OB between 2004 and 2007 was 82% for pups and 77% for totals when using the April 23 peak date, and 65% for pups and 56% for totals when using the May 4 peak date.

Changes at Subsite OB from 2004 - 2007

Presented by NPS

Year	Adult	Pup	Total
2004 Peak count	251	108	359
2007 Peak count (as of May 3)	65	19	84
2004 - 2007 Change (as of May 3)	-74%	-82%	-77%

Changes at Subsite A from 2005 - 2007

Not presented by NPS

Year	Adult	Pup	Total
2005 Peak count	220	101	321
2007 Peak count	21	16	37
2005 - 2007 Change	-90%	-84%	-88%

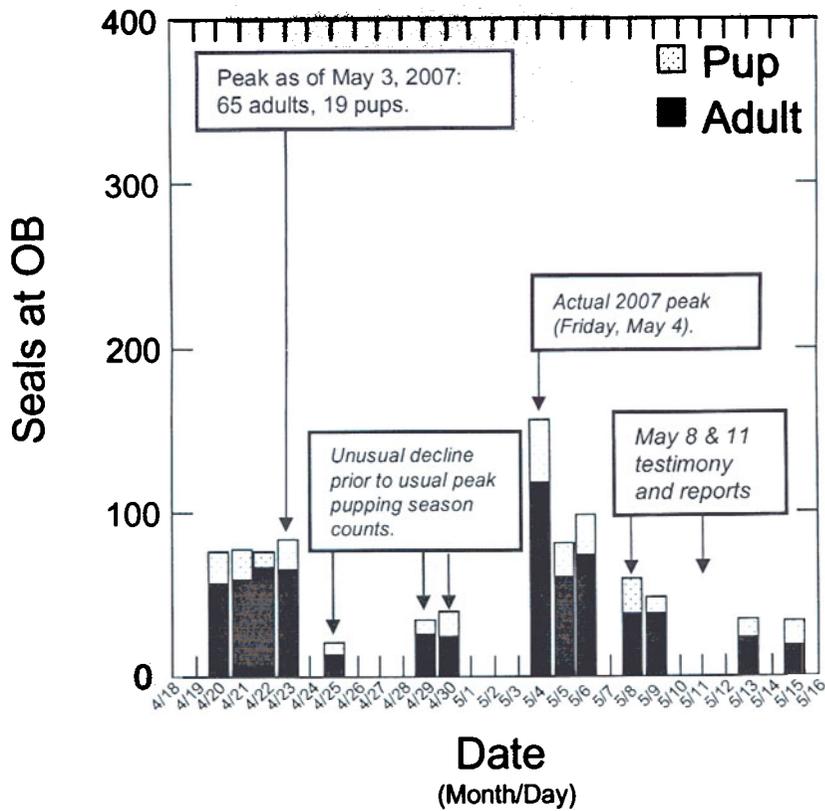


Figure 1. Harbor seal counts at Drakes Estero subsite OB in 2007. NPS used data available through May 3 to prepare May 8 and 11 testimony and reports. This is why the 80% decline was presented.