



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL MARINE FISHERIES SERVICE  
Southwest Region  
501 West Ocean Boulevard, Suite 4200  
Long Beach, California 90802-4213

NOV 17 2011

DBOC SUP EIS  
c/o Superintendent  
Cicely Muldoon  
Point Reyes National Seashore  
1 Bear Valley Road  
Point Reyes Station, California 94956

Dear Ms. Muldoon:

NOAA's National Marine Fisheries Service (NMFS) appreciates the opportunity to comment on the Draft Environmental Impact Statement (DEIS) for Drakes Bay Oyster Company (DBOC) Special Use Permit (SUP), September 2011, prepared by the National Park Service (NPS) and their consultants.

NMFS reviewed the DEIS primarily from the perspective of the impacts of the action alternatives on marine resources and ecosystems. We also reviewed the adequacy of the methodology used in the analysis and identified additional information NPS should consider as it develops the final Environmental Impact Statement (FEIS). Our detailed comments are provided in the attachment.

Based on a review of our records relating to the trust resources for which NMFS has responsibilities under the Marine Mammal Protection Act, the Endangered Species Act, and the Essential Fish Habitat provisions of the Magnuson-Stevens Fishery Conservation and Management Act:

- Based on the evidence and information that has been made available, the harbor seal population in Drakes Estero appears stable and healthy. We have no documentation of any recent disturbance of harbor seals by the aquaculture operation. We have no records of violations by DBOC or law enforcement investigations of DBOC under the Marine Mammal Protection Act.
- There is no indication of negative impacts to fish species of concern to NMFS, including ESA-listed salmonids and their critical habitat.
- There do not appear to be any significant impacts of DBOC operations on Essential Fish Habitat in Drakes Estero overall. We have no records to indicate that DBOC is impacting eelgrass to the degree that the eelgrass is not healthy or not providing adequate habitat values to the estero.




To improve the overall technical quality of the FEIS, we recommend that NPS:

- Modify the methodology so that all the alternatives are compared to the existing conditions baseline (as described in sections 1502.14, 1502.15, and 1502.16 in the CEQ regulations at [http://ceq.hss.doe.gov/ceq regulations/regulations.html](http://ceq.hss.doe.gov/ceq%20regulations/regulations.html))
- Add the National Aquaculture Act of 1980 as a relevant law informing this DEIS
- Expand the analysis to consider impacts on cultural resources and visitor experience
- Modify the analysis to take into account the ability of ecosystems to recover from negative impacts
- Provide a more balanced consideration of the ecosystem services and the positive impacts of shellfish aquaculture on habitat and water quality
- Include additional citations from the scientific literature.

In June 2011, NOAA adopted a new Marine Aquaculture Policy to enable the development of sustainable marine aquaculture within the context of NMFS multiple stewardship missions and broader social and economic goals. Under this policy, NOAA is committed to protecting wild species and ecosystems, and making timely and unbiased management decisions based upon the best scientific information available. We are committed to working with Federal partners to provide the depth of resources and expertise needed to address the challenges facing expansion of aquaculture in the United States. In keeping with the policy of encouraging sustainable aquaculture while protecting wild species and ecosystems, NMFS offers the attached comments on the Park Service's DEIS.

Thank you for consideration of our comments and recommendations. If you have any questions regarding our comments please contact Monica DeAngelis, 562-980-3232, [Monica.DeAngelis@noaa.gov](mailto:Monica.DeAngelis@noaa.gov) or Diane Windham, 916-930-3619, [Diane.Windham@noaa.gov](mailto:Diane.Windham@noaa.gov).

Sincerely,

  
for Rodney R. McInnis  
Regional Administrator

Enclosure

**Enclosure: National Marine Fisheries Service Comments on the Draft  
Environmental Impact Statement for Drakes Bay Oyster Company Special Use  
Permit**

**General Comments**

The design of the program to monitor harbor seal abundances and disturbance events at sub-sites within the Estero does not permit explicit tests of the impacts of mariculture. The disturbance data appear to have been collected during surveys designed primarily to monitor seal abundance trends, and observations of disturbance are not sufficiently representative to infer the proportionate contribution of mariculture-related disturbance relative to other sources of disturbance to hauled-out seals. NMFS recommends a reevaluation of monitoring protocols if the intent is to collect information regarding disturbances and potential impacts at the individual level, stock, and/or population level.

The EIS does not take into account nor provide any detailed analysis of other human influenced impacts to the ecosystem at the Estero. In Brasseur and Fedak (2003), tagged seals showed a 50% reduction in use of the area compared to use of the same area in years with less recreational boat traffic, and these disturbances also appeared to influence diving behavior. It is not clear how close the oyster rack and oyster bag areas are within Drake Estero to the sand flats used by harbor seals as haul-out sites. NMFS recommends evaluating the 100 yard recommended distance. It is important to recognize that the analysis showing a relationship between mariculture activities and a decline in the mean seal attendance at two of three haul-out subsites in Drakes Estero does not demonstrate cause and effect in the DEIS. NMFS recommends that data be provided on this topic. Potential negative effects of mariculture operations and activities on the harbor seal population represent the most serious concern expressed in the DEIS, which cannot be fully evaluated because these effects have not been directly investigated. NMFS supports precautionary measures to reduce the likelihood of disturbance of seals which are consistent with current management practices in the U.S.

NMFS found that some important information is missing or has been overlooked in the DEIS. NMFS provides additional references in the comments below and recommends that the NPS review these references and expand on the impacts analysis in the final EIS. Many of the ecosystem services provided by oyster aquaculture in Drakes Estero have only been touched on lightly, and NMFS hopes that the comments below are helpful in that regard.

**Specific Comments**

**Chapter 1, Page 21**

*"In early December 2009, NPS and CCC issued letters of violation to DBOC for placement of Manila clam bags within one of the harbor seal exclusion areas (NPS 2009cxx; CCC 2009axxi). In response, DBOC stated that clam bags had been placed within a harbor seal protection area because their global positioning system (GPS)*

*coordinates were misread and the misplaced clams would be immediately removed (DBOC 2009axxii)."*

In this instance: the document does not 1) report whether any disturbances were recorded during this time, 2) which harbor seal exclusion area; and, 3) with what proximity to the seals. This level of information could assist with determining appropriate distances that may minimize take as defined under the Marine Mammal Protection Act (1972).

### **Chapter 1, Page 25**

*"Commercial shellfish operations could potentially impact these species and their habitat through habitat competition, habitat improvement or degradation, noise and physical disruptions, and introduction of nonnative species."*

Each of these points should be better described in the document, including how commercial shellfish operations may impact harbor seals as well as other potential activities that may or may not impact the harbor seals.

### **Page 32, Cultural Landscapes**

NMFS recommends against dismissing cultural resources as a topic for further analysis. Oyster culturing in Drakes Estero pre-dates existence of the National Seashore; DBOC's facilities and structures provide a cultural landscape as well as a culturally historical experience for park visitors. Impacts of the alternatives on cultural resources need to be analyzed because the project objectives stated on page 5 include "manage natural and cultural resources to support their protection, restoration, and preservation." As stated in the DEIS (p. 32): "According to NPS-28: Cultural Resource Management Guideline (NPS 2002b), a cultural landscape is a reflection of human adaptation and use of natural resources and is often expressed in the way land is organized and divided, patterns of settlement, land use, systems of circulation, and the types of structures that are built. The character of a cultural landscape is defined both by physical materials, such as roads, building, walls, and vegetation, and by use reflecting cultural values and traditions."

### **Page 37, Relevant Federal Laws and Policies**

Please add the National Aquaculture Act of 1980, as amended, as a relevant law to be considered in the laws and policies informing this EIS. The National Aquaculture Act of 1980, as amended (16 U.S.C. 2801, et seq.), which applies to all federal agencies, states that it is "in the national interest, and it is the national policy, to encourage the development of aquaculture in the United States." The purpose of the act includes "encouraging aquaculture activities and programs in both the public and private sectors of the economy; that will result in increased aquacultural production, the coordination of domestic aquaculture efforts, the opportunities, and other national benefits."

### **Chapter 2, Page 61**

*"The lease boundaries were drawn prior to creation of the harbor seal protection areas designated in the 2008 SUP. Another concern with the original lease boundaries is that they were drawn without the aid of technology. It should be noted that the lease boundaries were also identified in the SUP as the offshore permit area. DBOC asserts*

*that the original mapping mistakenly excluded five of the racks in Bed 6 that were in existence at the time (DBOC 2011eii). Although most correspondence has cited five racks outside of the existing lease areas, the GIS data provided by DBOC and being used to support the development of this EIS indicates six racks outside the lease boundaries.”*

The document does not describe how the harbor seal protection areas were designated in the 2008 SUP. NMFS recommends that the boundaries of the harbor seal protection areas be reviewed. In addition, it is not clear if the harbor seal protection area encompass all areas where harbor seals have been observed to haul out or only the major areas with large numbers of harbor seals. The maps should also designate which haul out sites are used as rookeries during pupping season. In addition, NMFS recommends that suitable haul out sites for harbor seals that may not currently be used by harbor seals be described in the document and mapped. This will aid in review of the potential for more haul out sites to be available as described in Alternative A. Both the harbor seal protection areas and the lease boundaries should be mapped using the same program to aid in comparison. NPS should explain why six racks are considered outside of the lease boundaries if almost all correspondence has cited five, or update the information regarding the request to adjust the boundary to Lease M-438-01, if it has been finalized. A reference should be provided.

### **Chapter 3, Page 179, Harbor Seals**

*“Monitoring objectives have often included detection of changes to population size, evaluating reproductive success, and identifying anthropogenic or environmental factors that affect the existing population.”*

NPS should provide documentation that there has been an effect on the reproductive success of harbor seals at the Estero through the monitoring objectives.

*“Population size and reproductive success of harbor seals can be attributed to a number of factors, one of which is the availability of high quality breeding habitat.”*

NPS should provide details on habitat quality and how it may or may not relate to the Estero. Drakes Estero represents an important site for harbor seals, supporting about 20% of the mainland California population, thus a comparison of the present habitat quality and the future habitat quality for each of the Alternatives should be discussed.

*“Seal abundance at haul-outs is influenced by multiple factors, including time of day, tide level, current direction, weather, season, year, disease outbreaks, disturbances from other wildlife, and human activities (Yochem et al. 1987; Suryan and Harvey 1999; Thompson, Van Parijs, and Kovacs 2001; Grigg et al. 2004; Hayward et al. 2005; Seuront and Prinzivalli 2005; NAS 2009). Environmental factors such as El Niño–Southern Oscillation events can affect attendance and reproduction (Trillmich and Ono 1991; Sydeman and Allen 1999) due to the changes in weather patterns and ocean temperatures that usually accompany this Pacific Ocean phenomenon.”*

It is not clear if the protocol to collect data on harbor seals in the Estero considered these factors and how these factors may or may not influence the numbers of seals hauled out and anthropogenic disturbances versus non-manmade disturbances (*i.e.*, presence of a predator). NMFS recommends that these factors be considered and analyzed in the document under each of the alternatives.

*“Human activities can disturb seals at haul-out sites, causing changes in seal abundance, distribution, and behavior, and can even cause abandonment (Suryan and Harvey 1999; Grigg et al. 2002; Seuront and Prinzivalli 2005; Johnson and Acevedo-Gutierrez 2007).”*

NMFS is familiar with these peer-reviewed articles, but harbor seals are still hauling out at the Estero. Based on the data provided in the EIS, it is difficult to assess the future haul out potential that the Estero may have or whether the current environment has depressed this potential. Haul-out sites in Drakes Estero and adjacent to Estero according to the EIS have been divided into eight subsites based on habitat conditions. The EIS does not detail what these habitat conditions may be and the importance of these conditions to the environment for hauling out. During a single day, seals can move from one subsite to another. NMFS recommends a discussion on how movement from these subsites may be impacted by any of the proposed Alternatives.

### **Chapter 3, Page 181, Harbor Seals**

*“The document is under internal review by MMC. This report will be reviewed and considered as part of the NEPA process for this EIS when it becomes available.”*

NMFS supports the consideration of this document.

*“Between spring 2007 and 2010, more than 250,000 digital photographs were taken from remotely deployed cameras overlooking harbor seal haul-out sites in Drakes Estero. The photographs were taken in one minute intervals. Because the collection of these photos was not based on documented protocols and procedures, the body of photographs does not meet the Department’s standards for a scientific product. As a result, the photographs have not been relied upon in this EIS. These photographs are posted and available for review on the NPS website at [http://www.nps.gov/pore/parkmgmt/planning\\_reading\\_room\\_photographs\\_videos.htm](http://www.nps.gov/pore/parkmgmt/planning_reading_room_photographs_videos.htm).”*

NMFS recommends that the EIS provide information on which photographs, if any, were analyzed for impacts to harbor seals. NMFS was unable to review all 250,000 photographs and was not able to know which photographs were of importance for analysis purposes.

### **Chapter 3, Page 206**

*“High ambient sound levels from human voices, and sound events associated with human activities (e.g., driving cars, hiking), have been observed to have negative population-level, behavioral, and habitat-use consequences in many species (Frid and Dill 2002; Landon et al. 2003; Habib, Bayne, and Boutin 2007).”*

The term "high ambient sound" is confusing. If the human voices are audible above the ambient sound, then that should be discussed in detail. If use of the term "high ambient sound" is meant to indicate that the ambient sound at Drake's is higher than in other areas, this comparison should be made and measurements provided.

**Chapter 3, Page 206**

*"The impacts of underwater noise on marine mammals have been widely documented during the past 40 years, and have been the subject of three reports by the NAS (NAS 2003)."*

NPS should provide a detailed description of all activities that may cause underwater noise that may impact marine mammals in the Estero. NPS should also provide information on how the measurements were obtained, calculated, and modeled. The noise threshold that is being used to determine potential behavioral changes, temporary threshold shift, or permanent threshold shift should also be provided and mapped with the location of the sound source and the distance the sound propagates in the environment, taking into consideration the specific factors that may influence sound propagation in the Estero.

**Chapter 3, Page 213**

*"Visitors to the area use Drakes Estero and its environs for recreational activities such as kayaking and hiking. Drakes Estero is open annually to kayakers from July 1 to February 28. Closures are in place from March 1 to June 30 to protect harbor seals during pupping season."*

NMFS supports efforts to minimize impacts to harbor seals, particularly during pupping season.

**Chapter 3, Page 227**

*"Seashore staff are responsible for ensuring that closure policies within Drakes Estero are adhered to during harbor seal pupping season. Harbor seal pupping season occurs within Drakes Estero between March 1 and June 30. During this period, all recreational nonmotorized boats, including kayaks, are prohibited from entering Drakes Estero."*

NMFS and the USFWS are the Federal agencies with statutory responsibility under the Marine Mammal Protection Act (MMPA) and Endangered Species Act. , NMFS is the agency responsible under the MMPA for harbor seal conservation. NMFS supports measure to minimize impacts to harbor seals and encourages the NPS to work directly with NMFS Southwest Regional Office regarding development of harbor seal conservation and management measures.

**Chapter 4, Page 233, General Analysis Methods**

*"This analysis incorporates the best available scientific literature applicable to the region and setting, the resources being evaluated, and the actions being considered in the alternatives."*

There are limited references available that pertain specifically to Drakes Estero, thus, NMFS recommends that best available scientific literature include information from other, similar geographic areas, where it is logical to infer similar results; such literature should not be treated as not meeting a scientific standard. There is an abundance of scientific literature addressing oyster growing in esteros and estuaries, with similar, if not the same, species addressed including Pacific oyster, eelgrass, harbor seals, etc. NMFS provides some references and can provide additional references. In the absence of available geographically-specific scientific literature, NMFS encourages the NPS to utilize such similar sources of information.

#### **Chapter 4, Page 234, Baseline for Comparison**

The DEIS states that "...the term "baseline" refers to the condition against which a change is being compared for assessment of impact in this EIS. It should not be confused with other definitions of the term." The baseline against which the no-action alternative is assessed is generally existing conditions. This is consistent with DOI regulations guiding the implementation of NEPA, which state:

"The analysis of the effects of the no-action alternative may be documented by contrasting the current condition and expected future condition should the proposed action not be undertaken with the impacts of the proposed action and any reasonable alternatives."

However, the description continues "The action alternatives, on the other hand, are generally using the no-action conditions as the baseline condition. In other words, the analysis of the action alternatives may be documented by contrasting the expected future conditions under each action alternative to the expected future conditions under the no-action alternative."

This approach to the defining of, and comparing alternatives to different baselines, is unusual. It is common practice in NEPA documents to compare all alternatives to one baseline defined as existing conditions. NMFS questions whether it is appropriate to compare the impacts of one alternative to one baseline, and then compare impacts of other alternatives to a different baseline in the DEIS. NMFS recommends all the alternatives be compared to the existing conditions baseline. Please see sections 1502.14, 1502.15, and 1502.16 in the CEQ regulations at: <http://ceq.hss.doe.gov/ceq/regulations/regulations.html>.

#### **Chapter 4, Page 235, Duration of Impact**

NMFS recommends modification of the methodology to consider the extent to which adverse impacts are reversible. The methodology for assessing impacts that is described in Chapter 4 defines long-term impacts as any impact lasting longer than 1 year. This breakout between short- and long-term impacts is not useful in terms of evaluating the ability of natural systems to recover from any effects incidental to ongoing operations of DBOC over a 10-year period – e.g., effects on eelgrass from boat traffic or presence of gear on the site. Permit conditions could minimize impacts on eelgrass, and mitigation measures could accelerate recovery from any scarring or other effects incidental to



operations. NMFS is interested in working with NPS to develop appropriate permit conditions and mitigation measures.

**Chapter 4, Page 236**

*“Alternative A: All 95 racks would be removed, including approximately 4,700 posts (2-inch by 6-inch boards) and more than 179,000 linear feet (approximately 5 miles) of pressure-treated lumber would be removed (this is anticipated to take one to two months outside the harbor seal pupping season, March 1 to June 30).”*

The EIS should provide information regarding the impact to removing the 95 racks, including the timing, the type of equipment necessary to remove the racks, etc. These activities should be assessed to determine potential impacts to harbor seals.

***Note: Since Alternatives B, C, and D have similar, if not identical impacts, all comments for Alternative B are applicable to C, D, and E.***

**Chapter 4, Page 237**

*“Closure of the lateral channel during the harbor seal pupping season (March 1–June 30). Maintenance of a 100-yard buffer from any hauled-out harbor seal.”*

NPS should provide an analysis of how closure of the lateral channel during the pupping season would decrease the potential risk of disturbance to harbor seals. NPS should discuss the potential impacts of closing the lateral channel if other areas receive higher traffic and discuss the potential impacts of the proximity of harbor seal haul outs to boat traffic areas (i.e. could other harbor seal areas be impacted during the pupping season). In addition, the 100-yard buffer may need to be reviewed. NMFS offers its expertise on this matter and would support mitigation measures that would limit activities during pupping season (which is very similar to mitigation measures NMFS requires for MMPA incidental take authorizations).

**Chapter 4, Page 241, Human-cause Noise Sources (Other than DBOC)**

*“Other ongoing sources of noise in the Estero (DBOC-related noise is evaluated as an impact topic) such as overflights and use of cars along Sir Francis Drake Boulevard, has the potential to impact resources in and around the project area. These actions could impact wildlife and wildlife habitat (seals and birds), soundscapes, and visitor experience and recreation.”*

NPS should provide further details regarding overflights and how they may impact seals (i.e. potential noise levels, height of aircraft, etc.).

**Chapter 4, Page 242, Planning and Management Activities**

*“Past, present, and future planning and management activities at the park include the following projects/activities: New GMP, Adapting Drakes Beach Visitor Access Facilities to Accommodate Anticipated Coastal Change to Improve Natural Coastal Process, Abbotts Lagoon Coastal Dune Restoration Project, Regular trail maintenance, Approval of research permits. These actions could impact eelgrass, wildlife and wildlife habitat*

*(harbor seals and birds), special-status species, soundscapes, wilderness, visitor experience and recreation, and NPS operations."*

If "take" of harbor seals may occur as a result of these management activities, NPS should contact NMFS to determine if an MMPA incidental take authorization is needed.

**Chapter 4,, Page 243, Expansion of Mariculture within Humboldt Bay, California (under Past, Present, and Reasonably Foreseeable Actions in the CUMULATIVE IMPACT ANALYSIS METHODOLOGY Section)**

The DEIS discusses the potential Humboldt Bay Harbor, Recreation and Conservation District's pre-permitting studies for possible expansion of shellfish leases in Humboldt Bay, which has been awarded a \$200,000 grant from the Headwaters Fund. It is unclear why a project that is not within or even remotely near Drakes Bay Estero is included in this section. While Humboldt Bay growers may provide up to approximately 70% of CA's oysters, the fact remains that CA growers are not able to meet demand. Bottom leases from the State of CA are in a state of flux as the Fish and Game Commission updates the bottom lease template; current growers in the Point Reyes area have not been able to expand their operations and are unable to meet demand, whether it is localized or not. As has been discussed, seafood demand far exceeds the United State's ability to meet it. The United States imports 84% of our seafood, and about 50% of that is met through imports of foreign (and often unregulated) aquaculture products. It is inaccurate to assume that growers in the Point Reyes area could increase their production to make up for the loss of DBOC, or employ former DBOC employees, as their operations aren't able to expand currently (J. Finger, Hog Island Oyster Co., pers. comm. 2010). Similarly, it is unrealistic to assume that the Humboldt Bay proposed shellfish expansion, if permitted, could compensate for the loss of DBOC at the local level. The positive impacts of an expanded Humboldt Bay shellfish industry would not provide economic benefits to the local businesses and employees in the Point Reyes area, provide tourism dollars to the Point Reyes local economy, nor satisfy localized demand for oyster products - it would potentially provide economic benefits to the Humboldt County area.

**Chapter 4, Page 244, CDFG Marine Life Protection Act Initiative**

*"The Estero de Limantour SMR prohibits take of any living marine resource (CDFG 2010c)."*

NPS should provide a definition for the term "take" as it is used in this context.

**Chapter 4, Page 244**

*"Under the MMPA, if an activity is determined to be harassment under the above criteria, a specific permit called an Incidental Harassment Authorization may be required."*

The activities that may cause marine mammal behavioral disturbance or harassment need to be analyzed and NMFS should be contacted to discuss the possible issuance of an Incidental Harassment Authorization.

#### **Chapter 4, Pages 250-259, Impacts of Alternatives A, B, C, and D, Impact Analysis, Wetlands**

The DEIS cites Bullard, Lambert, et al. 2007, in stating that the removal of "...up to 142 acres of bags, racks, and other shellfish cultivation equipment from Drakes Estero would also reduce the potential introduction of noxious species such as the exotic tunicate *Didemnum*, which has been shown to displace habitat for naturally occurring benthic organisms around the commercial shellfish operations infrastructure." It is important to note that none of the sites surveyed in this reference included any sites in Drakes Estero or neighboring shellfish operations in the vicinity. While it is wise to manage shellfish operations to avoid the introduction of such exotic species, this can be addressed by use of best management practices in the shellfish industry. Some efforts that may be effective in removing other fouling organisms from aquaculture gear and shellfish stocks include dessication and mild acid dips. Careful management practices could also potentially limit spread of noxious species. NMFS is willing to work closely with DBOC and the NPS to identify and assure implementation of best management practices at the DBOC operation.

NMFS believes that the habitat value of shellfish aquaculture gear has not been adequately addressed in the DEIS. NMFS refers the NPS to Dealtris, Kilpatrick, and Rheault (Dec. 2004), who's findings indicate "...that shellfish aquaculture gear provides habitat for many organisms throughout the year, and is especially beneficial to ecosystems that support native species of recreationally and commercially important fish and invertebrates in their early life stages." They conclude that "...shellfish aquaculture gear has substantially greater habitat value than a shallow nonvegetated seabed, and has habitat value at least equal to and possibly superior to submerged aquatic vegetation." In another paper by the same authors, they determined that shellfish aquaculture gear provides a structured habitat protecting juvenile fish from predation as well as substrate for some forage species that fish and invertebrates feed upon. The authors found significantly higher organism abundance and higher species diversity in shellfish aquaculture than in submerged aquatic vegetation, and thus they conclude that shellfish aquaculture gear had habitat value equal to or possibly greater than submerged aquatic vegetation (Dealtris, Kilpatrick, and Rheault 2007).

NMFS recommends a more detailed examination of the various sources of impacts to the wetlands of Drakes Estero, in addition to addressing the impacts from DBOC, in order to fairly assess sources and degree of impacts relative to DBOC. Dumbauld et al. 2009 point to the fact that water quality is impaired in some West Coast shellfish growing areas, but that this is more often due to presence of fecal coliforms. Additionally, NMFS suggests that the NPS further examine park visitor traffic and recreational activities as it relates to wetland impacts; in particular, the effects of kayakers in Drakes Estero, the effects of launching kayaks from wetland areas, and potential foot-traffic trampling on wetland plants and mudflats.

The water quality benefits from oyster growing in Drakes Estero should be described in greater detail. The resilience of Drakes Estero – the ability to withstand and recover from a variety of naturally occurring and human induced actions –should be described in terms of all potential impacts. Additional references would enhance the assessments in this

section. Dumbauld et al. 2009 states that "...bivalve aquaculture does not remove area from the estuary or degrade water quality, and thus is less likely to undermine resilience." They go on to suggest that bivalve aquaculture hasn't been linked to "...reduced adaptive capacity of the larger ecological system."

Overall, NMFS views shellfish aquaculture as an environmentally sustainable activity in Drakes Estero and encourages the NPS to provide more in-depth information regarding to what degree other human activities, in addition to the already described activities, have the potential to degrade the ecosystem health of Drakes Estero, including impacts from park visitors/recreationists.

#### **Chapter 4, Page 262-272, Impacts of Alternatives A, B, C, and D, Impacts on Eelgrass**

NMFS suggests that the NPS provide a more in-depth analysis of the ecosystem services provided by oyster culturing, in terms of beneficial impacts to eelgrass. The DEIS focuses on negative impacts and appears to have overlooked much information regarding the beneficial ecosystem services provided by oyster culture that are evident in the DEIS references.

The DEIS refers to use of aerial photographs of eelgrass scarring – since the NPS did not utilize over 200,000 digital photographs of harbor seal activity in Drakes Estero, due to the fact that these photos did meet the NPS protocol or standard for "scientific evidence", the NPS should explain the protocol or standards that allow the use of these aerial photographs but preclude the use of the other photo database.

The DEIS suggests that Alternative A (No Action Alternative) would result in long-term beneficial impacts on eelgrass habitat. However, the NAS report (2009) states that "Nevertheless, removal of the Pacific oysters and nonnative clams under culture and all the structures used in the culture process would carry the consequences of removing the direct and indirect influences of the biochemical processes now provided by the filtration, excretion, and biodeposition of the shellfish and the influences of structural substrates of the oysters and the racks and bags that now hold them." Please see comments and references in the **Impacts on Wetlands** section, above. Additionally, the NAS report suggests that even though the estero has excellent water quality due in part to a strong tidal flux, the filtration provided by the cultured oysters likely lowers turbidity, which is beneficial to eelgrass production. Kaiser (2001, *in* NAS 2009) also suggests that shellfish cultivation processes have "...a generally positive influence on the overall water quality of a system." Beneficial water quality effects from shellfish culturing provides buffering from events such as storm turbidity or phytoplankton blooms, resulting in enhanced water quality and clarity, and potentially increased light penetration (DeAngelis, 1986 *in* NAS 2009, Rice 2001, Connecticut Sea Grant 2009/2020), which in turn promotes the growth and spread of eelgrass. Further, the NAS report clarifies that many populations of seagrass along the west coast demonstrate an increased abundance trend, including Drakes Estero.

Typically, eelgrass is absent directly under the oyster culture structures, but it appears the scale of these losses is tied directly to the scale and density of the structures, resulting in small reductions in eelgrass density and cover (NAS, 2009). The overall small-scale culturing footprint of DBOC "...suggests that these effects would be localized." In fact, the NAS report states that the estimate of eelgrass loss from propeller scars is less than 8% of total eelgrass cover (NPS, 2007e; Brown and Becker 2007 *in* NAS 2009). The amount of eelgrass in Drakes Estero appears to have approximately doubled over the years of oyster cultivation in the estero. While there are localized impacts from eelgrass coverage under the areas of oyster cultivation, the overall health of eelgrass in the estero appears to be very good, apparently owing largely to the tidal flux and good water quality. Without the water quality and filtration benefits from the oyster culturing in Drakes Estero (which pre-dates NPS presence), NMFS questions whether the current health of eelgrass would be as good. In fact, when compared to eelgrass beds in the Estero de Limatour, which has no oyster culturing, AMS (2002) found that sites in Drakes Estero showed higher eelgrass blade counts, again suggesting the beneficial effects of oyster culturing on eelgrass in Drakes Estero.

**Chapter 4, Page 286-293, Impacts on Wildlife and Wildlife Habitat: Fish Alternatives A, B, C, and D**

As described above, in the **Eelgrass** section, it appears that the health of Drakes Estero and its abundant eelgrass beds may be benefitting from the oyster culture being conducted there. There are no records in NMFS' files to indicate that DBOC is impacting the eelgrass to the degree that the eelgrass is not healthy, or that fish species of NMFS' concern are negatively impacted, including ESA-listed salmonids, nor does it appear there are significant impacts to EFH in Drakes Estero overall. The water quality and filtration services from oyster cultivation appear to support healthy eelgrass populations, and thus provide habitat and cover for fish typically found in Drakes Estero. Please see the additional comments and references in the **Eelgrass** section.

**Chapter 4, page 294, Methodology**

*"This section summarizes the impacts on Pacific harbor seals from the actions that would potentially occur under each alternative. In consideration of the populations of harbor seals found within the project area as discussed in chapter 3, impacts are evaluated in the context of the type of impact (direct, indirect), the nature of the impact (i.e., type of disturbance to wildlife and wildlife habitat), the quality and amount of harbor seal habitat impacted, and the potential for risks posed by proposed actions (e.g., introduction of nonnative species)."*

The NPS reports on harbor seals are not referenced as a data source in this document.

**Chapter 4, page 295, Impacts of Alternative A**

*"The elimination of DBOC boat traffic (up to 12 trips per day, six days per week), especially during harbor seal pupping season (March 1 through June 30), coupled with ongoing restrictions on recreational access during the same time, would likely result in beneficial impacts on harbor seals by reducing human disturbance and displacement effects during important harbor seal reproductive periods (Suryan and Harvey 1999)."*

NMFS believes that the removal of the oyster facility should be considered an action. The no-action alternative would leave activities at the current level and should be analyzed as such for this EIS. NPS should describe the potential beneficial impacts expected by reducing human disturbance and displacement effects. Typically, as a minimization measure in our permits, NMFS does take into consideration a reduction or elimination of activities that may impact seals during pupping season. It is not clear from this document what activities may cause take of harbor seals, as defined under the MMPA. NMFS offers our expertise to NPS to help address potential disturbance to seals. The DEIS does not consider what impact elimination of oyster activities or recreational activities may have on deterring other possible impacts to harbor seals (*i.e.*, does the presences of humans deter potential predators to harbor seal; would the cessation of oyster activities increase the number of coyotes that could predate pups?).

*“Becker, Press, and Allen (2011) show harbor seal haul-out areas documented in the Estero, including along the entire lateral channel in the central portion of Drakes Estero. Discontinuing operations would remove bags and boat traffic from this area, allowing for potential expansion of use areas by the seals.”*

The west and middle areas of the lateral channel are shallow and full of dense eelgrass (as another map in the draft EIS clearly shows). The harbor seals haul out where they have hauled out for many years – from the deep east end of the lateral channel onto a large beach. It is recommended that the document describe suitable habitat for harbor seals, determine whether this suitable habitat is available in the Estero, whether there has been historical use of these areas prior to anthropogenic impacts, etc. It is difficult to predict whether harbor seals would colonize a new area, but if the habitat has characteristics that have been shown to be important components of harbor seal haul-out sites, those areas should be described and mapped.

#### **Chapter 4, page 296, Impacts of Alternative A**

*“Due to the removal of potentially disruptive activities associated with DBOC within Drakes Estero, alternative A would be expected to result in beneficial impacts on harbor seals. Removal of shellfish infrastructure from within Drakes Estero may require the use of motorboats for a period of up to two months. This disturbance would continue to generate the human-caused noise that currently disrupts harbor seals, but would be conducted outside of the harbor seal pupping season to minimize adverse impacts.”*

NMFS recommends that these disturbances should be characterized and described in more detail in the document with references provided.

*“Under alternative A, NPS would install a gate to prevent all boat-related recreational access to Drakes Estero during harbor seal pupping season (March 1- June 30 annually). The placement of a locked gate restricting boat access to Drakes Estero during pupping season would be an effective deterrent, preventing adverse impacts on harbor seals from boat use during pupping season.”*

NPS should provide information as to why a locked gate would not be possible for any of the other alternatives.

*“This restriction on recreational access to Drakes Estero would be expected to have beneficial impacts on harbor seals. As described above, alternative A would result in long-term beneficial impacts on harbor seals because of the reduced disturbance to seals that would result from the termination of DBOC operations and associated human activities within Drakes Estero. Alternative A may also result in short-term minor adverse impacts because while impacts to harbor seals would continue, the impacts associated with rack removal would be localized and slightly detectable, and would not affect the overall structure of the natural community.”*

The long-term beneficial impacts need to be described and evidence needs to be provided.

**Chapter 4, page 296, Cumulative Impact Analysis**

*“Past, present, and reasonably foreseeable future actions have the potential to impact harbor seals and harbor seal habitat within the project area. These actions include kayaking, planning and management activities, and the CDFG MLPA initiative.”*

Details on the planning and management activities need to be provided and what component of those activities that may impact harbor seals needs to be analyzed.

*“While harbor seal disturbances could still occur outside of the pupping season, such disturbances are less likely to have population-level effects during that time of year.”*

NPS should provide a reference for the implication that disturbances are having population-level effects and/or that adverse population-level effects have been documented at the Estero.

*“Some limited use of motorized boats within Drakes Estero may take place for research or administrative purposes.”*

NPS should specify the research and administrative purposes that may impact harbor seals as it is difficult for NMFS to determine based on the information provided whether or not an MMPA Incidental Harassment Authorization (IHA) may be necessary.

**Chapter 4, page 297, Cumulative Impact Analysis**

*“Alternative A, in combination with the MLPA would result in only recreational clamming allowed within the Estero, thus reducing potential disturbance-related impacts.”*

NPS should analyze and discuss the potential disturbance to harbor seals caused by recreational clamming and describe how these potential disturbances would be managed.

**Chapter 4, page 297, Alternative A, Conclusion**

*“Disturbance would be limited to recreational kayakers, hikers on the adjacent landscape, and aircraft.”*

NMFS recommends that these disturbances be described in detail and impacts to harbor seals analyzed.

*“The cumulative impact would be long-term beneficial, and alternative A would contribute an appreciable beneficial increment to the overall cumulative impact. With respect to harbor seals, alternative A is consistent with relevant law and policy because removal of DBOC operations from Drakes Estero would remove an unnatural stimulus that currently affects harbor seal behavior. Additionally, the decrease in disturbance to this species would be consistent with MMPA (16 USC 1361 et seq., 1401–1407, 1538, 4107).”*

NMFS recommends providing additional information on which relevant laws and policies are referred to in this statement and how these are consistent with the requirements of the MMPA for harbor seals.

**Chapter 4, page 297, Impact Analysis, Alternative B**

*“Continued boat traffic DBOC operations would continue to be subject to the harbor seal protection protocol as part of the SUP. This protocol prohibits boat travel and general operations, including placement of bags, moorings, and installation of floating racks, within the established harbor seal protection areas (see figure 3-5). Other restrictions contained in the existing protocol, such as closure of the lateral channel (also shown on figure 3-5) during the harbor seal pupping season (March 1–June 30) and maintenance of a 100-yard buffer from any hauled-out harbor seal, would continue to be in effect.”*

This analysis when compared to Alternative A's impact analysis is confusing as many details are missing from each analysis. NMFS suggests improving the impact analysis for comparative purposes.

**Chapter 4, page 298, Impact Analysis, Alternative B**

*“Under alternative B, the current setback requirement of 100 yards from any hauled out seal (MMPA) would be retained. While the NAS 2009 indicates that larger setbacks are used in Europe, this setback is based, in part, on the MMPA standard, the scale of the Estero, and the ability of DBOC staff to reasonably see and recognize a hauled-out harbor seal.”*

It is not clear what MMPA standard is being referred to here, as a requirement of maintaining at least a distance of 100 yards from harbor seals is not a requirement or a standard under the MMPA. If take occurs, than an IHA may be needed. If NPS wants to establish a set distance to avoid take, then NPS should work with NMFS to evaluate what distance would be appropriate.



*“Lastly, there may be impacts on harbor seals related to underwater sounds produced by DBOC based on previous research on other marine mammals (NAS 2003). Alternative B would result in long-term moderate adverse impacts on harbor seals for another 10 years due to displacement effects within Drakes Estero of human activities associated with DBOC's operation and the potential for disturbances that are known to disrupt harbor seal behavior and displace seals. These impacts would be clearly detectable.”*

NPS should provide detailed information on underwater sound produced by DBOC and analyze how it may impact harbor seals, including thresholds for a temporary threshold shift or permanent threshold shift. If masking could occur, NPS should provide information and analysis to determine the impacts of the masking. Based on the analysis in the DEIS it is not clear if there are impacts related to underwater sound or if there may be impacts. NPS should provide information on whether masking has been documented in the monitoring. In addition, in order to support the statement that impacts would be clearly detectable the EIS needs to provide specifics on how these impacts would be detected (monitoring, what thresholds would be used, etc.). If the impacts can be clearly detected, NPS should describe the research study that demonstrated detection of impacts.

**Chapter 4, Page 294-303, Impacts on Wildlife and Wildlife Habitat: Harbor Seals, Alternative A, B, C, and D**

NMFS notes that, with development and implementation of an interagency harbor seal protocol in 1992 at the site of DBOC, there has been no documentation in NMFS' files regarding disturbance of harbor seals related to operation of DBOC. In addition, there have been no reported violations of MMPA or law enforcement investigations on record. There does not appear to be any evidence of population-level effects from disturbance of the harbor seals in Drakes Estero; the estero's harbor seal population appears stable and healthy. NMFS encourages the NPS to expand the analysis to carefully examine and disclose other sources of disturbance to this seal population, including but not limited to kayaks landing on the sandbar haul-out area and general kayak activity in the estero, along with documentation of NPS enforcement of MMPA requirements with park visitors. In addition, NMFS recommends that NPS expand the analysis to examine populations of harbor seals at other locations that are subject to human disturbance for comparison.

NMFS understands that the Marine Mammal Commission (MMC) convened a panel to review the science used by the NPS in analyzing the Drakes Estero harbor seals, and that a report from the MMC should be forthcoming. NMFS recommends that completion of the final EIS be delayed until this report is available to the NPS and the public, so that the information in the report can be incorporated into the analysis by NPS and is made available to all parties reviewing the DEIS.

**Chapter 4, Page 314-328, Impacts on Special Status Species, Alternatives A, B, C, and D, Central California Coho Salmon Critical Habitat, Central California Steelhead**

Please see comments regarding Fish, above. NMFS has no documented concerns regarding DBOC related to potential impacts to Central Coho Salmon Critical Habitat or Central Valley Steelhead.

**Chapter 4, Page 316**

*“During DBOC close out procedures, however, there would be an increase in traffic along the access road, as property and debris are removed from the site. This may cause a temporary increase in risk of vehicle strikes. This close out process is likely to take place outside the seasonal seal closure and last up to two months.”*

This implies that vehicles may strike harbor seals. NPS should clarify how this is related to the harbor seal closure and how this may or may not benefit harbor seals.

**Chapter 4, Page 321**

*“In addition, under alternative B, the NPS would not install a gate to enforce seasonal closures to recreational access to Drakes Estero during harbor seal pupping season. Thus, traffic levels over the access road would be expected to continue at current levels.”*

As previously noted it is not clear why the gate cannot be installed and provide needed access when necessary during the harbor seal pupping season if installation of the gate is intended to regulate human water use near rookeries in the Estero.

**Chapter 4, Page 337-349, Impacts on Water Quality Alternatives A, B, C, and D**

Please see comments above in the **Wetlands** and the **Eelgrass** sections. In addition, NMFS suggests that the broader water quality issues described in this section can be addressed in partnership. The NPS, NMFS, CA Department of Fish and Game, California Coastal Commission, and Regional Water Quality Control Board can effectively work together with DBOC to formulate permit conditions and best management practices to address the issues and improve water quality conditions in Drakes Estero. NMFS is available to provide expertise in such an effort.

**Chapter 4, Page 354**

*“Offshore noise-generating operations would include continued motorboat traffic in Drakes Estero.”*

Although the EIS does provide information regarding dBA levels, these dBA levels do not specify the distance these sound emitters could operate compared to where seals are expected to haul out (i.e. what the received level from the sound source may be at the haul out sites) and how it corresponds to thresholds of 90dBA for in-air for harbor seals.

**Figure 4-2** shows how sounds would dissipate from a pneumatic drill operating on the dock at the onshore facilities. Two noise contour levels were selected for these maps.

NMFS recommends this figure include harbor seal haul out sites to determine if there is any potential for overlap.

**Table 4-2. Figure 4-1 and Figure 4-2**

NPS should provide additional information describing how the noise generated and the propagation from the sound source was estimated or modeled.

**Chapter 4, Page 359**

*“Negative population-level, behavioral, and habitat-use consequences of higher ambient sound levels from human voices, along with sound events associated with human activities (motorists, hikers), have been observed in many species (Frid and Dill 2002; Habib, Bayne, and Boutin 2007). Human activities can disturb harbor seals at haul-out sites, causing changes in harbor seal abundance, distribution, and behavior, and can even cause abandonment (Suryan and Harvey 1999; Grigg et al. 2002; Seuront and Prinzivalli 2005; Johnson and Acevedo-Gutierrez 2007). Finally, demolition of the damaged main dock and construction of the proposed dock would require the-temporary use (less than one month assuming six days per week, 8 hours per day) of heavy vehicles, which typically emit sound levels between 60 and 80 dBA, depending on which equipment is necessary-(FHWA 2006). This would cause a temporary adverse impact on the natural soundscape.”*

NPS should indicate whether it expects that these sound sources would be perceived by the harbor seals and describe the potential impacts .

**Chapter 4, Page 360**

*“The use of heavy machinery would be at a level that would cause vocal communication to be difficult at distances of less than 16 feet.”*

NPS should provide information on the proximity of this activity to the seals and whether it is assumed that there will be no auditory damage to seals' hearing. In addition, NPS should provide information on whether this may result in masking. NPS should describe in detail any potential impacts to the seals of the visual component of the machinery or activities, which may cause seals to flush from haulout areas.

**Chapter 4, Page 368, Impacts on Wilderness Alternative A, B, C, and D**

The DEIS mentions that human activities can cause disturbance of harbor seals and changes in harbor seal behavior, distribution and abundance, and even site abandonment. It would be useful for the NPS to report on (or conduct a study if it hasn't been addressed) the effects of human activities in Drakes Estero to harbor seals, beyond the effects from DBOC. The park has high visitation from various sectors of the public, among those are hikers and kayakers in the vicinity of DBOC. The kayak launch is adjacent to DBOC; it seems likely that kayakers could also unintentionally disturb harbor seals while kayaking in the estero. Information on rates of harbor seal disturbance correlated to park visitors and their activities would be most informative and would add to the body of knowledge regarding overall harbor seal disturbances.

The DEIS states that as discussed in greater detail under the impact topic of soundscapes, a motorboat in Drakes Estero produces a sound of 71 dBA at 50 feet (Noise Unlimited,

Inc. 1995). On a calm day, it may take over 3,200 feet (0.6 miles) for this sound to dissipate to natural sound levels. NPS should explain how this distance was calculated.

**Chapter 4, Page 373**

*“Additionally, the generation of noise by DBOC operations, both onshore and within Drakes Estero, would have the potential to disturb birds and harbor seals.”*

NPS should provide additional information on which activities would generate the noise.

**Chapter 4, Page 381, Impacts on Visitor Experience and Recreation**

The DEIS states that approximately 50,000 people visit DBOC annually. Oyster culturing in Drakes Estero pre-dates the park presence. There is a long cultural history of oyster culturing in Drakes Estero that is not adequately addressed in the DEIS. Please see comments in the **Cultural Landscapes** section. NMFS recommends that the NPS expand this discussion in both sections.

The DEIS states that the gate would prohibit motorized boat access to the water during certain times, but would allow visitors to access Drakes Estero on foot. The proposed gate would allow visitors to access the site outside harbor seal pupping season (between July 1 and February 28). NMFS recommends providing this information in previous sections describing Alternative A as visitor access on foot should be analyzed or discounted for potential disturbance to harbor seals.

**Chapter 4, Page 389-402, Impacts on Socioeconomic Resources, Alternative A, B, C, and D**

The DEIS identifies a localized economic impact if DBOC is removed from Drakes Estero. Consistent with the NOAA National Aquaculture Policy, NMFS supports the development and maintenance of sustainable marine aquaculture. In a down-turned economy, the localized loss of jobs as well as the localized and statewide reduction in the availability of oysters, may be more significant than is represented in the DEIS. With up to 34% of oyster production in CA coming from DBOC, the removal of DBOC would be significant. The DEIS notes the potential permitting of a Humboldt Bay shellfish expansion proposal and assumes that such expansion can compensate for the loss of oyster availability from DBOC, should it be removed. This is a potential long-term outcome, but only if the proposal is successfully permitted. Initial feasibility studies are just getting underway for the Humboldt Bay shellfish expansion proposal and any actual permitting, leasing of shellfish growing areas, and availability of product is not realistic in the near future. In addition, such potential expansion does not benefit the local economy of the Point Reyes area. Potential jobs created in Humboldt Bay will not benefit displaced workers from DBOC, nor will the sale of Humboldt Bay shellfish benefit the Point Reyes area. Potential DBOC visitors will not inject funds into the local economy nor provide benefits to local tourism that is currently afforded. Please also see comments in the **Expansion of Mariculture within Humboldt Bay, California** section above.