

# Current level of oyster farming unlikely to have substantial impact on Drakes Estero ecosystem

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A new report from the National Research Council finds a lack of strong scientific evidence that the present level of oyster farming operations by Drakes Bay Oyster Co. (DBOC) has major adverse effects on the ecosystem of Drakes Estero, a body of water north of San Francisco within Point Reyes National Seashore, which is owned by the National Park Service.

The report adds that the adverse or beneficial effects of oyster farming cannot be fully understood given the existing data and analyses. Furthermore, the [National Park Service](#) report "Drakes Estero: A Sheltered Wilderness Estuary" in some instances selectively presented, overinterpreted, or misrepresented the available scientific information on DBOC operations by exaggerating the negative and overlooking potentially beneficial effects.

In 1976 when a commercial shellfish operation existed in Drakes Estero, Congress designated it as a potential wilderness area. The Department of the Interior, which oversees NPS, has indicated that the oyster farm now located on Drakes Estero conflicts with full wilderness status, and upon the termination of the farm's lease in 2012, NPS should proceed with converting the area to wilderness. Recently, various versions of the NPS' Drakes Estero report have stimulated public debate over whether scientific information justifies closing DBOC after the lease expires. The debate led to the request for a Research Council study to help

clarify the environmental issues connected with oyster farming in Drakes Estero and assess the scientific basis for the NPS presentations, reports, revisions, and a clarification document. The study was not an inquiry into potential scientific misconduct and made no such determinations.

While examining the impacts of oyster farming, the committee that wrote the report affirmed that effects on the estero are derived from two sources: the presence and biological processes of the oysters and the activities of the oyster farmers. As in other bodies of water, the magnitude and significance of the ecological impacts from oyster farming vary with the intensity of operations. Oysters filter materials from the water as well as excrete materials that sink to the bottom. To some extent, the oysters in Drakes Estero replace the filtering and material processing that was lost more than a hundred years ago when the native Olympia oysters were overharvested, but insufficient information is available to know how many oysters and how much biomass existed under these historical baseline conditions.

The committee found that oyster farm activities are likely to have some influence on animal and plant life in the estero. For example, oyster boats may disturb harbor seals during the breeding season, but a lack of information exists on how disturbances from various sources affect the seals. Drakes Estero is a significant breeding location for harbor seals - about 20 percent of the mainland California population comes ashore on sandbanks during the season they give birth. To date, no studies have determined whether seals' short-term responses to disturbances have long-term consequences on the population. But, if seal behavior during the breeding season is affected, a precautionary approach would minimize disturbances to avoid potential effects on their population, the report says.

The committee also examined the ecological impacts of shellfish farming on eelgrass, fish, and birds in the estero. Eelgrass beds

approximately doubled in area from 1991 to 2007 but are absent directly underneath the oyster culture racks, which represent a small fraction of the total acreage. Propeller scar damage from DBOC boats also affect the eelgrass, but damaged eelgrass can regenerate quickly, limiting the long-term impacts. Definitive conclusions about potential effects of oyster farming activities on fish could not be reached, and a study of impacts of oyster bags on shorebirds in an area near Drakes Estero indicated modest effects, some negative and others positive.

Past practices of importing oysters from Japan and other regions resulted in the introduction of several nonnative species, including a parasite that infects oysters. DBOC's current practices -- in which they import larvae from domestic hatcheries and voluntarily participate in a set of industry guidelines called the High Health Program -- minimize the risk of introducing disease pathogens and external "hitchhiker" species.

Regarding the assessment of scientific information by NPS, the committee found that none of the versions of "Drakes Estero: A Sheltered Wilderness Estuary" achieved a rigorous and balanced synthesis of the impacts from oyster farm operations. The last document, "National Park Service Clarification of Law, Policy, and Science on Drakes Estero," which was intended to correct and clarify previous statements made by the NPS, provided the agency's most accurate release of science relating to shellfish farming impacts. The reinterpretations of science prompted by outside criticism appeared to have influenced the NPS decision to prepare and release the Acknowledgment of Corrections and Clarification documents.

In addition, the final NPS clarification document does not fully reflect the conclusions of the Research Council committee in two areas. First, NPS did not acknowledge the changing ecological baseline of Drakes Estero, where native *Olympia* oysters probably played an important role in structuring the ecosystem until they were functionally eliminated.

Second, NPS selectively presented harbor seal survey data and overinterpreted the seal disturbance data, which are incomplete and nonrepresentative of the full spectrum of activities that could potentially disturb seals in the area. The oyster farm's potential negative effects on the harbor seal population represent the most serious concern and cannot be thoroughly evaluated because the effects have not been fully investigated.

The committee emphasized that the decision to extend the lease hinges on the legal interpretation of the legislative mandate rather than on scientific analysis. As such, more scientific study of DBOC operations and Drakes Estero may not affect National Park Service decisions about the future of oyster farming in the estero. The ultimate decision to permit or prohibit a particular activity -- such as oyster farming -- in any location requires value judgments and tradeoffs that can be informed, but not resolved, by science, the committee noted. Similar to other zoning and land-use questions, this issue will be settled by policymakers charged with weighing the conflicting views and priorities of society as part of the decision-making process.

Source: National Academy of Sciences ([news](#) : [web](#))

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