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**Subject:** Commercial Oyster Farm Proposed Within Dungeness National Wildlife Refuge  
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Hello-

I am writing to you in **opposition** to this operation. Although the Washington State Department of Natural Resources approved a land lease, and operations are expected to begin there are two issues remaining that will need to be resolved: monitoring and access.

When the Clallam County Hearing Examiner gave his approval, it was contingent upon establishing a monitoring plan to evaluate the farming impacts on wildlife. A plan is currently under development, but monitoring human impact on wildlife is very complex. Monitoring itself can cause a disturbance to wildlife.

Accessing the farm location will require approval. Located in an area of the Refuge that is closed to humans from October 1–May 14 means US Fish & Wildlife will need to determine if this economic use is compatible to permit entry into the closed area. Disturbance, including lights, noise, human presence, boats and substrate disturbance can be anticipated from a commercial shellfish aquaculture operation, and these activities are in conflict with the purpose of the Refuge.

The Refuge was established in 1915 by President Woodrow Wilson to protect wildlife. It was not established to conduct commercial aquaculture operations. If allowed, what precedent might this set for the future?

Some important points to consider:

- The proposed location is regarded as a high-use area for waterfowl and shorebirds, especially for winter foraging.
- The level of proposed activity in this location would likely present a significant disturbance to wildlife.
- The proposed location could negatively impact the view and experience of the 100,000 annual Refuge visitors with the visual pollution of up to 80,000 plastic mesh bags, and boats and workers in the area.
- Plastic debris from the mesh bags is a concern. Wildlife could potentially get trapped in the mesh or ingest the plastic debris as it breaks down.
- Bags anchored to the ground could prevent new growth of native eel grass and may disrupt natural habitat on the seabed, reducing foraging areas. Areas near the proposed site have eel grass, which provides habitat for forage fish and shellfish. The forage fish provide food for salmon, and they become food for Orca. Will the proposed location disrupt eel grass growth and the food chain?
- Noise pollution from workers, boats, and equipment may scare wildlife, causing wildlife health issues, or abandonment of the site. Noise may also disturb Refuge visitors and neighbors on the bay.

Dungeness Bay has some of the largest eel grass beds in the Northwest! The eel grass and associated fauna support regionally significant populations of Brant, diving ducks, seabirds, loons, grebes, and other diving birds. This increasingly rare habitat of Dungeness Bay is especially important to Pacific Black Brant (*Branta bernicla*), a sea goose of the Pacific Flyway, which nests in the Arctic and uses Dungeness Bay for wintering and migration staging. The Pacific Flyway Management Plan for Brant protects critical habitat, including pursuing mitigation (avoidance, minimization, and compensatory mitigation) for loss or degradation of eel grass beds, grit sites, and loafing sites. This international management plan for the Pacific population of Brant includes Russia, Mexico, Japan, the US Fish and Wildlife Service, and the Canadian Wildlife Service.

In addition, routine disturbance will force individuals to move their foraging efforts to more marginal feeding areas, e.g., less healthy eel grass beds, areas where they may be more susceptible to predation, or in regions where water depth gives less time to feed in waters shallow enough for them to feed. The mosaic of habitat is critical in Dungeness Bay. How far will disturbed birds go and when (at what human activity threshold) will they simply leave for another area, one that is likely to be less optimal than Dungeness Bay? Disturbance and flushing behavior in Brant decrease their foraging, resting and gritting time. Reduced foraging time and increased flight time deplete energy reserves of Brant (Ward et al, 1994), especially in the spring when it impacts their migratory and breeding success (Henry, 1980, Lewis et al 2013, Ward et al 2005). Brant increase their eel grass intake in spring to build up important energy reserves for migration and breeding success in the summer (Wilson and Atkinson, 1995). Longer migratory stopover duration and slower mass gain may occur with even relatively small levels (10%) of disturbance (Stillman, 2015).

Human activity may damage the habitat and disrupt the birds' ability to survive in the area. Phase 1 of the Dungeness Bay commercial aquaculture project proposes to use boats with hydraulic lifts, for an estimated 2–6 round trips per month (estimated at one per week), lasting up to 6 hours each. The boats will need to traverse Dungeness Bay from public dock sites to the aquaculture site. In Dungeness Bay, low tides consistent with aquaculture work occur at night in the winter, and lights will be needed both by the boats and the estimated 3–15 workers.

Furthermore, the proposed commercial cultivation methods include 29 acres of on-bottom oyster aquaculture in Phase 1, in addition to 5 acres of bagged oysters and beach harvest of mature oysters. The decision to limit the oyster aquaculture project initially to 5 acres of on-bottom bags was made due to likely negative environmental impact findings. From the Mitigated Determination of Non-Significance issued 10/31/19: "The proposal is located within the Dungeness National Wildlife Refuge, which is an important area utilized by migratory birds, waterfowl geese and shorebirds. The following impact could still result in a probable significant adverse impact if not mitigated 1) Potential impact to marine plants and animals from the operation 2) Potential impacts to the Dungeness National Wildlife Refuge. A Mitigation and Monitoring Plan (Exhibit 89 B1.8) was submitted by the proponents. The rationale for the plan states "the most pressing concerns are to Refuge wildlife, particularly migratory birds, and the surrounding habitat as follows: 1) Potential disturbance to the Brant foraging and loafing (sic) habitat 2) Potential disturbance to shorebirds – namely Dunlin 3) Potential impact to eel grass habitat 4) Potential impact to forage fish spawning habitat 5) Plastic debris from farming activities."

Lastly, careful scientific monitoring of the proposed 5 acre bagged oyster project would be

necessary, since this method of aquaculture is new to the Dungeness Bay. Bagged oysters require human intervention to avoid sedimentation. They must be flipped routinely. This adds an element of human disturbance to the Refuge that was not seen in previous on-substrate oyster cultivation. The frequency of oyster bag flipping will depend on sedimentation rate, but with an eventual plan of 80,000 bags of oysters, this presence could be calamitous!

During spring migration alone, Warnock and Bishop (1998) estimate 15,000-20,000 shorebirds use the Dungeness National Wildlife Refuge. Dungeness Bay is recognized as an area of Western Hemisphere Shorebird Reserve Network site of Regional Importance by the North Pacific Coast Regional Shorebird Management Plan (Drut and Buchanan, 2000).

Dungeness Bay is so noteworthy that it has received the Audubon designation “Important Bird Area,” identified as being significant habitat for the conservation of bird populations. Located on the north shore of the Olympic Peninsula, this site includes inter-tidal and sub-tidal waters of Dungeness Bay, Dungeness Spit, the Dungeness River estuary, and adjacent wetlands. It comprises extensive sand flats and mudflats; some of the largest eel grass beds in the Northwest; and a network of spits, sandbars, and small islands. Adjacent coastal wetlands contain fresh water and estuarine marshes and ponds maintained by a seasonally high-water table. Dungeness Spit and adjacent inter-tidal areas lie within the Dungeness National Wildlife Refuge. Dungeness Bay, one of the premier estuaries in the Pacific Northwest, is used by tens of thousands of shorebirds, gulls, and waterfowl during migration and winter. Its sand flats and mudflats provide extensive feeding areas for shorebirds. Over 40 species of shorebirds have been recorded in and around Dungeness Bay, and two nest there: Killdeer, and Black Oyster catcher. Some of the most abundant migrant shorebird species such as the Black-bellied Plover, Dunlin, and Sanderling also remain in Dungeness Bay through the winter. Sub-tidal eel grass beds and associated fauna support significant populations of Brant, diving ducks, seabirds, loons, grebes, and other diving birds.<https://www.audubon.org/important-bird-areas/dungeness-bay>

**I plead with you to please reconsider this proposed oyster farm within the Dungeness National Wildlife Refuge!**

Thank you for your time-

Liz Rodgers

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