

**From:** [Sollmann, Lorenz](#)  
**To:** [BrownScott, Jennifer](#)  
**Subject:** Re: Draft Aquaculture Debris Removal  
**Date:** Wednesday, August 1, 2018 4:40:16 PM  
**Importance:** High

---

I think that covers it pretty good.

Lorenz

On Wed, Aug 1, 2018 at 4:09 PM BrownScott, Jennifer <[jennifer\\_brownscoth@fws.gov](mailto:jennifer_brownscoth@fws.gov)> wrote:

Does this capture what we discussed?

-----  
If we anticipate that aquaculture debris is most likely to accumulate on Refuge shorelines within Dungeness Harbor, we estimate that approximately 6 miles of shoreline are most likely to accumulate aquaculture debris from the proposed farming operation. We would suggest using 36-48 volunteers (3-4 volunteers per ½ mi of shoreline) to patrol and remove the debris within this area. To reduce impacts to wildlife, shoreline patrols and collections should occur during the first two weeks of April, July, and October. Because of the number of volunteers necessary to cover the area, the time needed for transport to/from patrol sites, and removal of collected debris, we suggest patrolling the area over a four day period. Patrol and collection within the eelgrass areas would require an additional effort and should occur within the first two weeks of April and October. Monitoring during the winter would need to be done from specified areas with debris only being removed if deemed necessary to protect wildlife.

This suggestion is based on the effort required for current debris cleanups on the Strait side of Dungeness Spit, migrating shorebird and wintering waterfowl use of the area, and eelgrass germination and growth seasons. Time would be required to recruit and organize volunteers; transport volunteers to and from their patrol sites; remove staged debris by UTV, foot, or boat; process and categorize marine debris to better understand its origin and impacts; and properly dispose of aquaculture debris. Since these cleanups would occur in a closed area of the Refuge, require UTV use in a visitor use area, require collection in areas known to harbor European green crab, and may require the decision to leave debris if removal could be detrimental to habitat or wildlife, it would be best to have the activity managed by a Refuge staff member.

Unfortunately, our limited number of full-time permanent staff does not have the capacity to take on this additional work. We would expect that each cleanup of the shoreline and tidelands would require at least two weeks (assuming that tideland debris left from previous farming activity was removed prior to the initiation of new activity).

If our original assumption is incorrect and debris accumulates on the Refuge shorelines of Dungeness Bay, a larger effort would be required. Examination of currents in the Harbor and Bay may be necessary to accurately predict debris deposition locations.

---

Jennifer Brown-Scott  
Refuge Manager  
Washington Maritime NWRC  
715 Holgerson Rd  
Sequim, WA 98382  
office: (360) 457-8451 ext.22  
fax: (360) 457-9778

~~*Dungeness NWR~Protection Island NWR~San Juan Islands NWR*~~  
~~*Copalis NWR~Flattery Rocks NWR~Quillayute Needles NWR*~~

--

Thanks,  
Lorenz Sollmann  
Deputy Project Leader  
Washington Maritime National Wildlife Refuge Complex  
715 Holgerson Rd. Sequim, WA 98382  
360/457-8451 - fax 360/457-9778