

**From:** [BrownScott, Jennifer](#)  
**To:** [Elizabeth Tobin](#)  
**Subject:** Marine Debris Information  
**Date:** Friday, July 20, 2018 9:32:57 AM  
**Attachments:** [Aquaculture Debris Information071618\\_Is.docx](#)  
[Photos of AC debris from the refuge7.2018.pdf](#)  
**Importance:** High

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Please see the two attached documents for information and pictures from Lorenz regarding marine debris.

Hope this information is helpful.

-jennifer

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Conversations regarding Aquaculture debris during our May 24, 2018, meeting focused on concerns due to macroplastics. However, some finer netting materials (see the blue arrow in picture 2 of the attachment) may present a microplastic issue as well. They seem to degrade more rapidly than the other items.

The refuge has not conducted any science based study to look at AC debris impacts. Estimated percentages, of AC debris versus other marine debris, has not been documented. However, we do regularly encounter AC debris during beach cleanups and other administrative activities.

We have included a few photos of what we believe to be items used for various types of AC. The photos only represent the diversity of items that have been found on the Refuge, not the quantities. All collected marine debris is discarded after collection, except those pieces we feel can demonstrate the diversity of marine debris, and/or provide ownership information.

Although it is a separate issue, derelict fishing gear is another problem the refuge must deal with and compounds to our overall concern with marine debris in all its forms.

View of the variety of aquaculture debris the refuge has collected.



These 4 bags on the end all contain oysters of various sizes. It also appears there are 2 or 3 different farming methods represented with these bags.



A bar of foam attached for floatation

Finer netting

The tag reads: LoveJoy Hidden Inlet with phone number.



Some of the items have identifying markings, this we think is Taylor Shellfish. We haven't verified but we thought State law requires all bags to have owner markings but many do not.



Ownership tags that have come off of the rest of the debris item.

Top right blue-Hama Hama

Middle blue PCFS-2012 3

Red- 0043919 LVLA Express



The debris entwined in the plastic is Salicornia (Pickleweed) from Graveyard Spit found this year.





Just showing that there is more than can be seen from the first photo.



Although not aquaculture debris derelict fishing gear is the next big concern. The bottom 6, lower 3 from each stack, were all abandoned within 50 yards of the outside (Strait side) of Dungeness Spit. The floats in front of the pallets are not from these traps.



We know it happens and this is not meant to get anyone in trouble. Just a FYI.

