



## Mussel rafts in low flushing inlets.

Bivalves can be stocked at such high intensities that “anaerobic microbial pathways dominate, and sulfur reducing bacteria produce high levels of hydrogen sulfide that are toxic to benthic...species.”

*--Dr. Roger Newell, University of Maryland, on possible impacts from shellfish aquaculture.*

**Mussel rafts--Gallagher Cove, Totten Inlet**

# Is there independent monitoring of shellfish farms?

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APHETI commissioned a dive under the mussel rafts in Gallagher Cove, Photos taken during 11/3/06 dive.



APHETI states that both invasive tunicates and Beggiatoa bacterial mats were found under the mussel rafts. The lab tested sample was full of Beggiatoa strands and had a high hydrogen sulfide content.

**PhD Marine Biologist recommends:** independent scientific study of the bottom below the mussel farm that incorporates random sampling of the bottom, video surveys, and sediment analyses for porewater chemistry and benthic species diversity in relation to control sites outside mussel farm.

Info provided by Association for Protection of Hammersley, Eld and Totten Inlets (APHETI). Claims by industry that only 50 microns of Beggiatoa were in sample are incorrect. The 50 microns refers to the diameter of the bacterial filament, not the amount in the sample.

## Mussel rafts propagate non-native species.



An Environmental Impact Study regarding mussel raft installations in Totten Inlet, mandated by Thurston County in 1999, is still ongoing.

*Mytilus galloprovincialis*, the Mediterranean mussel, is listed in the *100 of the World's Worst Invasive Alien Species* list. [www.issg.org](http://www.issg.org), [www.conservationinstitute.org](http://www.conservationinstitute.org), [nas.er.usgs.gov](http://nas.er.usgs.gov)

‘The proposed mussel farms will have a probable significant adverse environmental impact to the Totten Inlet and to the waters of Puget Sound’ relating to “the establishment of the Gallo mussel as a common form of mussel within Puget Sound waters and impacts related to said introduction.’ From Hearings Examiner’s conclusions, Thurston County, 1999

With EIS still pending, why is the industry allowed to sell the gallo mussels to the public?

Non-native (Gallo) Mediterranean mussel has hybridized with native mussel.  
Totten Inlet, 6/2006

## Mussel rafts a congregation point for invasive tunicates.



**Congregation of tunicate 'didemnum.'  
on mussel rafts in Gallagher Cove,  
Totten Inlet.**

**--Photo from USGS website.**

**'The invasive colonial tunicate, *Didemnum sp.*, is native to Europe and probably came to this region in ballast water discharged from ships, as hitchhikers on recreational boats, or on shellfish and/or shellfish equipment brought to the region from other locations.'** --Washington State's Response to an Invasion of Non-Native Tunicates, Accomplishments, Challenges and Next Steps, Report to the Legislature. February 2007.

***Dirty Jobs* segment on the Gallagher Cove mussel farm shows extent of tunicates on mussels and on gear.**

**What steps is industry taking to remove tunicate infestation?**