If this request is allowed you will all be personally responsible for the utter and complete commercialization and destruction of Totten Inlet as we know it today. You will go on with your life while we watch one family, Taylor, reap huge profits at the expense of our beloved natural treasure. Once this is started it cannot be reversed. Totten Inlet will be nothing more than an ugly and dreary operation for the greed of one family. Who will answer for your mistake after you have moved on? What recourse will we as citizens of Thurston County have? How can this be allowed when the invasive species team of Fish & Wildlife is desperately working to stop the intrusion of non-native life forms in our state? Please stop this once and for all. Don’t be known as the one that killed Totten Inlet.

Stuart Edwards, Annette Edwards, Chad Edwards & Blake Edwards,  
third & fourth generation stewards & residents of Totten Inlet.

[Signatures]
TO: Hearing Examiner and Thurston County Resource Stewardship Dept.
Building #1
2000 Lake Ridge Drive S.W.
Olympia, WA 98502

RE: Project #961372 SSDP
Applicant: Taylor Shellfish Co.

Our family owns adjacent property and approximately Half of "Adams Cove" on Totten Inlet. The other part of "Adams Cove" and 1,400 feet of waterfront along with 34 acres - as per C.L.T. newsletter which is attached was purchased in June 2011 by Capital Land Trust for conservancy.

We hope that Thurston County will not give in to pressures from anyone to install floating rafts of any kind in the vicinity of this protected Shoreline - which is located within a "CONSERVANCY SHORELINE ENVIRONMENT" as designated by the Shoreline Master Program for the Thurston Region."

Very truly yours,

Jim and Lela Stein
P.O. Box 7564
Olympia, WA 98503-7564
In early June 2011, Capitol Land Trust acquired a 34-acre property on the northeastern shore of Totten Inlet on the Steamboat Island Peninsula. The site has a small pocket estuary with critical salmon habitat, 1,400 feet of waterfront, steep bluffs that replenish natural gravel beaches, and small streams flowing from mature forests that cover most of the property.

Major grants from US Fish & Wildlife/WA Dept. of Ecology’s Coastal Wetlands Grant program and the state’s Salmon Recovery Funding Board helped finance the project. Other funds came from Taylor Shellfish, the Squaxin Island Tribe and the Steamboat Conservation Partnership.

“This is a relatively small piece of shoreline, but it has enormous biological value that will now be preserved and enhanced,” said Capitol Land Trust’s conservation projects manager Laurence Reeves.

According to Laurence, the project was originally championed by local resident and south Sound conservationist Gayle Broadbent-Ferris who died in an accident in 2009. She introduced the property to the Trust and helped keep interest in its preservation alive during a period when development was contemplated. “Gayle, more than anyone, would have been thrilled to know the property is now under conservancy,” Laurence said.

Dave and Joanne Schuett-Hames, local residents who provided marine habitat expertise for the project, also mentioned Broadbent-Ferris’s dedication to conservancy of the Adams Cove area. “She lived near the property,” Dave said, “and felt it was not suitable...”
for intensive development. She had great appreciation for the natural values of the wetlands and the estuary.”

“This was a very complex project,” said Laurence, “but eventually, through a lot of hard work on the part of many organizations and individuals, it all came together. We have skilled and dedicated staff, but we can’t do it all. As with many of our projects, we relied on contributions of time and expertise from many members and volunteers. Their involvement was absolutely critical.”

Near the start of the project, Laurence visited the site with Dave and Joanne to assess its potential. What they found was a pocket estuary in relatively pristine condition, with many acres of neighboring forest and wetlands that provide clean fresh water. The property, known locally as Adams Cove, includes a protective sand spit at the estuary entrance, a beach used by spawning forage fish, an intertidal salt marsh, and mudflats providing habitat for Puget Sound coho, winter steelhead, chinook, summer chum, and coastal sea-run cutthroat.

“This is a pretty special piece of the south Puget Sound ecosystem,” said Dave. “Our job was to capture the nature of the place in language that biologists would understand, to provide heft for the technical and scientific aspects of the grant applications. We helped explain why this particular place, in its current state, is so beneficial to fish and other marine populations.”

Dave and Joanne do this kind of work professionally, but they did it as volunteers for this project. They have helped Capitol Land Trust with several other projects as well.

The threat of commercial development above the shoreline bluffs accentuated the sense that the property should be conserved in its entirety. According to Dave, “The upland area is a forested wetland system that provides habitat for birds and plants, and is the main source of cool, clean fresh water for the estuary. Anything built on the bluffs would more than likely degrade water quality and the entire system’s ability to sustain plant and animal life.”

The estuary is also the mixing zone for fresh and salt water, and it’s especially important for the very large native chum run that spawns each year in Kennedy Creek at the southern end of Totten Inlet.
According to Dave, “The fry come out of the freshwater creek in the spring as very small fish, only a couple inches long. The open water of Totten Inlet can be dangerous for them. The salinity presents a huge physiological adjustment, and it helps to have places like Adams Cove where they can find relatively fresh water to reduce that shock. The estuary, with its protective spit, shallow water, and overhanging trees, is a refuge from wave action and from predatory birds and fish. It’s also a source of small organisms for them to eat."

There is also evidence that young Chinook salmon from central and even northern Puget Sound forage in Totten Inlet and its estuaries before migrating out to the ocean.

One other important feature of the Adams Cove habitat, Dave said, is its undeveloped shoreline, with intact forest. “You have well-developed shoreline vegetation to feed the nutrient food chain,” he said. “Some of the trees will fall into the estuary, providing good cover habitat in the water. And trees hanging over the water provide shade and help keep the water cool.”

The other benefit of conserving this piece of land is the preservation of natural “feeder” bluffs, which help maintain the viability of beaches that are the spawning ground for sand lance, Pacific anchovy, herring, and other “forage” fish on which salmon feed.

According to Dave, “When this kind of shoreline becomes highly developed, people often build bulkheads because they don’t want the erosion. Eventually, over time, as that erosion is eliminated or controlled, the gravel can get scoured out, leaving nothing but clay. It’s important to have unarmored bluffs with some erosion to provide gravel and sediment to replenish the beaches.”

The Totten Inlet coastal shoreline is a permanent or migratory home to more than 100 bird species, including eagles, owls, ospreys, plovers, sandpipers, woodpeckers and loons, and the property has potential as a possible restoration area for the native Olympia oyster, Laurence said.

Both Laurence and Dave emphasized that Adams Cove is a particularly unspoiled pocket estuary. Many similar estuaries, especially those with spits, have been dammed up in the past to create freshwater ponds.

Dave stressed that each pocket estuary is part of a larger ecosystem that is important to newly hatched fish. “They don’t just function in isolation,” he said. “You get more benefit if there are a series of them along the shoreline that the fish can move into. Maintaining a network of them would be much better than just preserving one.”

The main purpose of this project was to conserve the estuarine habitat. A corollary to that is recognition that human visits to the property, especially on land, are not necessarily beneficial to that purpose. “As with many of our projects,” Laurence said, “we encourage thoughtful and respectful visitation for educational and scientific purposes. We want people to remember that hands-off is probably the best policy. Our five-year management plan for Adams Cove is to just let it do its own thing. And that’s in keeping with the intent of the funding agencies.”

Steve Keio is an Olympia writer, photographer, and painter who appreciates the work of Capitol Land Trust.

THANK YOU PROJECT PARTNERS:
- WA Department of Ecology
- US Fish & Wildlife Service
- WA State Salmon Recovery Funding Board
- Squaxin Island Tribe
- Taylor Shellfish Farms
- Steamboat Conservation Partnership
- Dave & Joanne Schuetz-Harmes
- ADESA Environmental Services
- Michael & Lorrie Asker, William & Bonita Asker, Michael & Tracy Evans
You are invited to the Eighth Annual Capitol Land Trust
Conservation Breakfast

Please join us for a special breakfast commemorating Capitol Land Trust’s 25 years of collaborative and strategic conservation of southwest Washington’s essential natural areas and working lands.

This community event is a celebration of the achievements of Capitol Land Trust and our many partners, and will raise crucial funding for sustaining this work. This year’s Conservation Award recipients will be the Chehalis Tribe and the Squaxin Island Tribe, for their exceptional leadership and dedication to environmental conservation and stewardship throughout the region.

Thursday, February 9, 2012
7:00 -- 8:30 am
Check-in begins at 6:45 am
The Marcus Pavilion at St. Martin’s University
5300 Pacific Ave SE, Lacey, WA
RSVP requested

Principal Event Sponsors:

Capitol Land Trust is a 501(c)3 nonprofit organization, conserving the special places of southwest Washington since 1987. All donations are tax-deductible.
TO: Hearing Examiner
    Tom Bjorgo-

My family has lived on Totten Inlet for over 75 years. We have enjoyed many days on the water and beaches here. The beaches by our property have been commercially cultivated on and off with steamer clams and oysters over the years. Farming was done the same way the shellfish grow naturally but with a greater intensity.

The farming has now changed. I believe it was in the 1980's that oysters began to be grown in black plastic bags. Steamer clams now have nets put over their beds. Geoduck are no longer just harvested in the deep water, now there are farms that are planted, adding miles of plastic tubes to the inlet.

The first mussel farm in Totten Inlet was and is located at Deepwater Point. These mussels initially were grown on long lines that were hooked up to large blue barrels. They are using rafts there now also. Next came the mussel farm at Gallagher Cove with more rafts. Now this mussel farm has been proposed between 85th Ave. & 90th Ave. in Totten Inlet.

Is this all that Totten Inlet is going to be just one farm after farm? Where does this expansion of aquaculture stop? Common sense tells you that you can't put all of this shellfish in this bay and expect everything to be O.K. Nature's balance is definitely being messed up. With so much expansion the many cumulative impacts cannot be ignored, or mitigated. Everyone and everything that lives in or on Totten Inlet is effected to some degree.
We are loosing Totten Inlet to Aquaculture. Over the years it has become harder and harder to get to the water for all the land farming and now they want the surface water too. What will be left for the people who use the water and beaches for recreation and enjoyment? We have fished and boated in the proposed farm site for years, as have many many others.

The proposed mussel farm is in an area of waterfront homes that are located on a higher bank. This farm will be in their face, an eyesore. Lights, noise and smell will all be factors. The beautiful peaceful view that is cherished now will be destroyed.

I visited Penn Cove on Whidbey Island in the late 1990's, where a mussel farm is located. It has been operating there for some time. I recall walking on the beach and how it was covered in mussel shells and debris. It felt as if you were walking on a sponge, not a normal rocky beach. There were bees all around and a strong offensive smell. They were working on the rafts at that time and you could hear a constant roar of machinery. We were told that these beaches used to be beautiful.

The mussels that will be grown are not native and there is a likelihood that these will displace our native mussels or hybridize and create a new strain. With introducing more mussels there will be more mussels to foul or boats, docks and beaches. And all of this just to be grown for export.

The shellfish companies are basically self monitoring. These sites are not inspected regularly. The different shellfish farms should have to contribute to the county and state budgets to employ the people it takes to monitor the different sites and their practices.
The citizens of the State of Washington shouldn't have to battle the Shellfish Industry. County, State and Federal agencies need to stand up for the people and not give our water and beaches away. Aquaculture is a preferred use not the preferred use.

This type of farming is not compatible with so many things. Please protect & preserve Totten Inlet for now and the future. Please deny this application.

Thank you-

Cindy & Greg Archer
3212 90th Ave. N.W.
Olympia, WA 98502
February 6, 2012

Thurston County Hearing Examiner
Thurston County Resource Stewardship Dept.
2000 Lakeridge Drive  Bldg. 1
Olympia, WA 98502

Re: Project #961372 SSDP

Dear Hearing Examiner,

We grew up in the neighborhood adjoining the proposed Taylor Shellfish mussel raft installation on 90th Ave. NW and Adams Lane NW. Although we now live in Seattle, we return to our family home often to enjoy the beauty and serenity of Totten Inlet. We are opposed to this project for the following reasons, many of which are rights protected by the Shoreline Management Act:

1) **Neighborhood Character**: Adams Lane has been a stable rural residential neighborhood for 40+ years. We highly value our quiet, natural environment and fear it would be completely changed in character by installation of a large industrial operation next to us.

2) **Size**: The proposed installation would consist of 11.25 acres in front of our shoreline. The 58 structures have footprints of 30x34 ft. each, about the size of a house. This project is similar in size to a housing subdivision on the inlet waters. This is way out of proportion in our rural neighborhood.

3) **Noise, lights, hours of operation, human intrusion**: Crews and machinery would work at all hours, even on weekends, adjacent to neighborhoods.

4) **Past abuse of public trust**: Taylor Inc. has trespassed on state land right in front of our neighborhood for years despite our pleas to the county. They have publicly denigrated our motives, called us names and tried to intimidate us. The current rafts in Gallagher Cove are unsightly and cluttered, and industry debris has littered our shoreline property for years. Why should we believe they will be considerate of us in the future?

5) **Citizens right to use the shorelines will be restricted**: Our families have lived a water-oriented lifestyle for multiple generations, including boating, fishing, swimming, waterskiing, beach walking and generally “hanging out on the beach”. Inland and in-town people join us and therefore also enjoy access to a shoreline that has very little public access. Access to the beach is already restricted by oyster, clam and geoduck beds; now boat access would also be blocked by rafts. Water quality for swimming would be impacted by mussel excrements, harvesting, maintenance and pest control.

6) **Property values**: We would be adversely impacted financially as access, views and enjoyment of Puget Sound will be devalued.

7) **Priority of uses of state’s resources**: We see no reason that industry profits should be a priority over citizen's rights. The SMA very clearly gives priority to single family residences and shoreline recreational uses over aquaculture as a preferred use:

*The overarching policy is that the public’s opportunity to enjoy the physical and aesthetic qualities of natural shorelines of the state shall be preserved to the greatest
8) **Natural ecology:** The native species of Totten Inlet tidelands are systematically being replaced by crops of single commercial species. We are losing bio-diversity and risk irreversible damage to a national treasure. How will future generations view this choice?

9) **Invasive species:** We see Gallo mussels growing on our docks, floats etc. and are concerned they will spread and compete with native species.

10) **Pest Control:** The industry views our native species as pests to be eliminated. They destroy native animals and plants by killing them on sight, covering the beach with nets and using pesticides. Native species should be protected.

11) **Tourism/recreation businesses:** Water-related tourism depends on the natural environment. No one comes to Puget Sound to see industrial installations. These uses might instead be developed so more people could enjoy the Sound.

   "Alterations of the natural conditions of the shorelines of the state, in those limited instances when authorized, shall be given priority for...development that will provide an opportunity for substantial numbers of people to enjoy the shorelines of the state". (SMA)

12) **Cumulative impact:** There is no mention of cumulative impact analysis in the draft EIS. This project was proposed before the massive expansion of geoduck plantations; the continuous spread of plastic nets and bags to keep native species from feeding; and constant industry activity to farm the majority of Totten Inlet’s tidelands. How much can the ecology of the inlet survive?

13) **Balance of uses:** Aquaculture is an important part of the inlet and community but it should not dominate.

Thank you for listening to our concerns. The preservation of the natural environment and ecology of Totten Inlet should be the primary concern of the stewards of this public resource. We hope you will also protect the rights and liberties of the residents of our community, and work towards a balance that includes aquaculture but does not allow it to grow out of proportion.

Sincerely,

Bryan Mondau  
1515 SE 94th St.  
Seattle, WA

Alex Mondau  
2720 3rd Ave. #607  
Seattle, WA
Feb. 6, 2012

To: The Hearing Examiner of Thurston County

Re: Project # 961372 SSDP

The Shoreline Management Plan states in Section Three, II. Aquaculture Activities, B. Policies, # 8. Proposed aquaculture activities should be reviewed for impacts on the existing plants, animals and physical characteristics of the shorelines. Available scientific information on the effects of non-native mussel culture on the marine environment is not thoroughly studied in the EIS. The EIS did not address the following issues:

- Conditions under the current mussel rafts in Gallagher Cove and Deep Water Pt., i.e. bedgiatoa. Bedgiatoa is part of dead zone that develops under the mussel rafts and should be recognized as a highly negative impact of existing and new raft systems.
- Tunicates are an invasive nuisance species that thrive in and around mussel rafts. Building more mussel rafts will increase the spread of tunicates which the DNR is trying to control.
- Proposed treatments for “pests” and controlling of so called predators: Many of the “pests and predators” are marine creatures that co-exist in the typical natural marine environment but because of the mono-culture concept, mechanical and chemical means are used to eliminate them.
- Cumulative impact of the increased oyster and geoduck industrial cultivation over the last 14 years and the impact to the food web.
- Armoring of the beaches in the near and sub tidal zones with PVC tubes, nets and plastic bags to expand growing areas for oysters and geoducks. This is a new practice in the last 10 years which adds to the cumulative environmental impact.

These above mentioned issues were not a focus of the draft EIS because they were not part of the aquaculture activities and environmental concerns at the time the EIS was ordered by the hearings examiner 14 years ago. Now they are and must be considered based on WAC 197-111, Parts 400: 197-11-408.....” (5) The lead agency shall revise the scope of an EIS if substantial changes are made later in the proposal, or if significant new circumstances or information arise that bear on the proposal and its significant impacts.” There are plenty of new circumstances and information as public input demonstrates.

Taylor Shellfish ought to be held to a higher standard that reflects the current understanding of how our marine environment in Totten Inlet contributes to a healthy Puget Sound. The county’s
job is to protect and manage the environmental resources for the community and generations to come, not to facilitate the use of a public resource for profit.

It is important to view the permit request in the context of all the commercial aquaculture activities in Totten Inlet before the remaining public resources are converted to industrial shellfish operations. Most of the private land in near shore and inter-tidal areas are under cultivation at this time. Thurston County has the opportunity to protect the remaining state land in cooperation with the Capital Land Trust’s recent efforts to conserve Adams Cove, one of the most significant shorebird habitats in Washington’s inland marine waters. Remaining state land ought to be designated a natural reserve/conservation area. Let’s think big picture and sustainable.

The intent of the law, including the Shoreline Management Act, is to balance commercial uses with protection of the environment and its resources for public use. We must protect our ecosystem, and not allow a private company to reap huge profits while the community inherits the risks. The EIS does not acknowledge any risks to the eco-system, let alone address dealing with potential consequences. Alternative #3, no mussel rafts, must be considered due to the unknown impact to maintaining a balanced eco-system in an already maximized aquaculture environment.

Respectfully,

Fritz Mondau

8831 Adams Ln NW

Olympia, Wa. 98502
February 6, 2012

Thurston County Hearing Examiner
Thurston County Resource Stewardship Dept.
2000 Lakeridge Drive  Bldg. 1
Olympia, WA 98502

Re: Project #961372 SSDP

Dear Hearing Examiner,

As an adjacent property owner to the proposed Taylor mussel raft installation, I would like to express concerns regarding how this project conflicts with the stated goals of the Shoreline Master Program (SMP) for the Thurston Region (Thurston Regional Planning Council, 1990). The project is proposed to be located in a designated “Conservancy Environment”. The SMP states in Section 2 that “The intent of a Conservancy Environment designation is to protect, conserve and manage existing resources in order to ensure a continuous flow of recreational benefits to the public and achieve sustained resource utilization.”

Goal 7: Historical & Cultural Values

Totten Inlet has historically had a rural beach culture. Many local families have for generations enjoyed boating, fishing, clamming, beach walks, water sports, summer cabins and year-round life on the Sound. Traditional aquaculture was an integral part of this culture. Once planted, the clams and oysters then grew on the beach naturally. People and native species could co-exist with aquaculture in balance. Recent "advances" in the aquaculture industry now instead intensively plant single commercial species intensively over much larger areas and armor the farms with man-made structures, plastic nets, bags, PVC pipes and metal stakes. Aquaculture is becoming the only activity on Totten's shoreline. This is not in the spirit of the stated Shoreline Management goal of preserving local Historical and Cultural Values as the community can no longer access the beach for traditional recreational uses, and the whole cultural context of the community changes from rural and natural to industrial farming.

At high tide Totten Inlet still appears to be a stunning natural vista, but this too will be taken from citizens when the marine views out to the sunset change to acres of unsightly rafts and equipment.

Goal 8: Restoration

Taylor's proposed mussel raft installation is located directly off the beach of the newly designated Adams Cove Pocket Estuary Land Trust. The Griffin community is very excited about preserving this intact estuary ecosystem to provide a sanctuary for native plants and wildlife. It is incongruent to then industrially develop the shallow water connected to the estuary. The beach, tide lands and cove will be impacted by changes to the habitat by acres of rafts, anchoring systems, boats and machinery and masses of mussels and their wastes.
In addition to the Adams Cove Trust, a local group is petitioning to manage a community based restoration project on the state owned "Taylor trespass area" adjacent to the Cove area. Their vision is to restore native habitat, including native Olympia oysters. This project would also be compromised by the mussel raft installation.

Goal 6: Conservation

Intensive industrial farming also does not meet the Conservation Goal "to protect conserve and manage existing natural resources" if native species are eliminated as pests and predators, and native ecosystems are replaced with armored plantations of monocultures. Long-time residents grieve the loss of our native beach wildlife. On a beach walk in the past we would encounter sea stars, sand dollars, moon snails, crabs, sea cucumbers, dogfish, flounder... no longer. They have been actively destroyed by aquaculture as pests, and have disappeared with the loss of their ecosystem. Although the rafts are not on the beach, the shallow waters are part of the normal ecology of the shoreline which would be disrupted. “Pest control” of marine life attempting to feed on the mussels will further deplete our native species.

The residents of Totten Inlet and recreational visitors already must tolerate 2-3 existing raft installations and aquaculture on 90 percent of Totten's private tidelands. In our opinion this project would add to a net loss for citizens as minimal tax revenue and jobs are out-weighed by the negative factors of loss of native habitat, loss of recreational use of beaches, obstruction of boating and fishing waters, risk of invasive species and disease from non-native commercial species, industrial noise pollution, and degradation of natural marine vistas.

The Shoreline Master Program goal of Restoration states "The goal of this element is to restore to a useful or original condition those areas (including waters) which are blighted by present uses and dilapidated or abandoned structures. The current mussel rafts in Gallagher Cove are a visual blight of dilapidated structures. Why would we allow more of the same within a couple miles?"

Respectfully submitted,

Barbara Mondau
8831 Adams Lane NW
Olympia, WA 98502
Feb. 9, 2012

To: Hearing Examiner of Thurston County

Project # 961372 SSDP

Dear Hearing Examiner,

New Mussel raft site: Not a Good Idea!

Views of the North Totten Site, as it exists today, include the Black Hills when looking from north to south for at least 10 families. Looking from south to north, the views include Windy Pt. and the Olympics, in the distance, for a dozen families. Most of the families have been in their homes for 30 years. These incredible views will be compromised by the proposed industrial raft installation.

The proposed site (16 acres) for the new raft is directly in front of the Capital Land Trust Conservancy of the Adams Cove Estuary area (34 acres and 1400 ft. of shoreline). The impact will be enormous to both the surrounding residential area and the quality of the conservancy goals for bird and fish habitat.

The noise from the operation will resonate across the inlet on the calm weather days. Calm days are the ones required to work. These days are some of the most enjoyable for boaters and residents around Totten Inlet. Commercial shellfish operations historically run 7 days a week due to weather and tides.

The proposed mussel rafts will ruin the surrounding marine area. Views will never be the same. The constant activity on the rafts will impact bird and fish habitat.

Take a look at these pictures. We ask how much is enough commercial aquaculture in Totten Inlet? We need to find a balance between the commercial use of public resources and the protection of The Adams Cove Estuary and the surrounding marine environment.

Sincerely,

Fritz Mondau

8831 Adams Ln NW

Olympia, Wa. 98502
North Totten Site

Proposed site for 58 rafts in a 16 acre area left of the pilings.
Large objects stored on rafts
Working at the Gallagher Cove site
From: "jjmn" <jjmn@aol.com>
To: <mlpmtroymocomcast.net>
Sent: Sunday, February 12, 2012 12:45 PM
Subject: Permit 961372, Taylor Shellfish North Totten Mussel Farm Comments from Jules Michel

Thank you for the opportunity to provide these comments on Taylor Shellfish's proposed 58 raft mussel farm. I am a third generation Mason County shoreline and tideland owner. My comments below are based on studies (provided) and communication with experts in the field, also provided.

I trust my comments will help to ensure future generations are able to enjoy the diversity of species which currently exist in Puget Sound's waters. The following consists of two primary parts, one addressing the permit, the second the EIS. Both have as a primary objective the control of the non-native invasive tunicate, Didemnum sp A (aka vexillum).

As currently managed, this proposed farm and the two others create vectors of significant size for this species to take hold on and provide stepping stones towards the main body of Puget Sound at the mouth of Totten Inlet. (See "Propagule pressure determines recruitment from a commercial shipping pier" Hedge and Johnson, 2012 Biofouling: The Journal of Biofouling and Biofilm Research, Volume 28, Issue 1, 2012 for a discussion on artificial structures creating stepping stones for the expansion of non-native species into adjacent areas.)

In addition, current aquaculture farms in Totten Inlet, along with their jobs and revenues are put at risk. PVC used in geoduck farms; oysters and grow out bags; and other structures used in aquaculture within the waters of Puget Sound are all substrate capable of supporting this non-native invasive tunicate. Carlyon Beach Marina being nearby, along with associated boats, is put at risk of becoming another vector for the spread of this species.

With the Governor's budget cuts having eliminated programs which were in place to monitor and manage this non-native invasive species, Thurston County is left in the position of oversight and control to ensure Dv is contained. Decisions made today on this permit application will leave long lasting impressions on what the future of Totten Inlet and south Puget Sound is.

I believe the following comments, backed by scientific papers and experts in the field, fully support strong oversight of this proposal, if not denial.

Sincerely,
Jules Michel
3rd generation shoreline and tideland owner, Mason County
residence: 3008 NE 45th Avenue, Portland, OR 97213
Phone: 503-287-7940

Part 1: Permit Comments
SMPTR Section 3, Chapter II, Part B, Policies
2. Aquacultural uses of areas with high aquacultural potential should be encouraged.

This project puts at risk current aquaculture farms in Totten Inlet through the spread of Didemnum sp A. (see EIS comments below)
8. Proposed aquacultural activities should be reviewed for impacts on the existing plants, animals and physical characteristics of the shorelines.

This project puts at risk the habitat and ecological functions of the area through its increasing the surface area substrate for colonization of Didemnum sp A. Consideration of this effect in the EIS is not correct and in fact creates significant risk which should be mitigated. No conditions were written to address this. (see EIS comments below)
9. Proposed uses located adjacent to existing aquaculture areas which are found to be incompatible should not be allowed.

a) The propagation of Didemnum sp A will put current recreational and commercial shellfish farms at risk. (see EIS comments below)
b) Tidelands adjacent to the proposed location are not owned by Taylor but are state owned tidelands accessible by boat and used by the public. Taylor had been found to have encroached onto these tidelands but they do not own them. (see EIS comments below)

SMPTR Section 2, Chapter V. REGIONAL CRITERIA
B. Protection of water quality and aquatic habitat is recognized as a primary goal. All applications for development of shorelines and use of public waters shall be closely analyzed for their effect on the aquatic environment. Of particular concern will be the preservation of the larger ecological system when a change is proposed to a lesser part of the system, like a marshland or tideland.

The addition of 25 acres of surface area below the waters of Totten Inlet and colonization of Didemnum sp A was not considered correctly in the EIS and therefor could not have the effects closely analyzed. (see EIS comments below)
F. Applicants for permits shall have the burden of proving that a proposed substantial development is consistent with the criteria which must be met before a Permit is granted. In any review of the granting or denial of an application for a permit as provided in RCW 90.58.18.180 (1), the person requesting the review shall have the burden of proof.

The applicant has not met this burden of proof due to incorrect assumptions and interpretations of scientific studies noted in the analysis of tunicates. (see EIS comments below)

CONDITIONS
Conditions do not address the increased risk from Didemnum sp A. The EIS's analysis of this impact is flawed. (see EIS comments below)

CUMULATIVE IMPACT
The cumulative impact from increasing the sub-surface area on which tunicates will be able to grow by 24 acres was not adequately analyzed. That Didemnum sp A exists on Taylor's Gallagher Cove facility was ignored. This existing population of the non-native invasive species Didemnum sp A is a vector from which it can propagate further, given the medium to grow on. Current harvest methods are recognized as being inadequate to prevent the release of this tunicate. The addition of an additional farm, closer to the mouth of Totten Inlet, creates another vector which, when coupled with the lack of control found in harvesting and monitoring, puts the larger body of south Puget Sound at risk. This species of tunicate is not "common" in south Puget Sound nor should the unsupported statement be used to allow this facility to go in, especially when its operation will so clearly result in the further spread

2/12/2012
of this non-native invasive tunicate.

Part 2: EIS Comments
SCIENTIFIC EVIDENCE THE EIS’S ANALYSIS OF NON-NATIVE INVASIVE TUNCATES IS FLAWED

The risk:

"We predict that Didemnum sp. A [aka vexillum] has the potential to cause great ecological and economic damage on both coasts of North America."


"Didemnum vexillum is very aggressive invader and you should have real concern about the potential of D. vexillum to impact natural west coast habitats." James Reinhardt, PhD personal communication

The opportunity:
The issue with non-native invasive tunicates in south Puget Sound cannot be understated, especially as it relates to the species Didemnum sp. A (aka vexillum). Taylor's mussel raft in Gallagher Cove has been specifically called out in scientific papers ("Including a heavily fouled mussel culture facility", Bullard, Lambert et al 2007) with pictures here:
http://www.ods.ae.edu/docs/pa/pa63/pa63-06.htm
(taken by Gretchen Lambert, tunicate expert, in 2004). In south Puget Sound this is the primary location where it is found. There is still an opportunity to contain the problem in this area before it adversely impacts recreational and commercial shellfish opportunities, and the ecological function of south Puget Sound in general. This is a decision which will effect future generation's ability to enjoy Puget Sound as the Shoreline Management Act intended it to be.

Analysis found in the EIS is flawed:
The EIS's response to tunicates comments states, in part, "But given the life history of D. vexillum [aka sp A] and all of the current natural and human-made structures in Totten Inlet, the problem can be expected to remain at about the same level with or without the project." This statement understates the impact. The addition of another 58 rafts will result in the equivalent of 24 acres of surface area below the water, concentrated in a very small area, for further growth of this tunicate (each raft has 720 lines 16' long of mussels, each the equivalent of 6' cylinders 16' long, with a total submerged surface area of over 1 million square feet). Predator nets surrounding the entire farm add another "wall" along the sides and bottom for attachment. The proposed site is less than 2 miles from the mouth of Totten Inlet and the primary location where this invasive tunicate is found in south Puget Sound is on Taylor's Gallagher Cove mussel rafts. This farm creates another "vector" for the further spread of Didemnum sp A into south Puget Sound.

The EIS's response to tunicate comments states "D. vexillum continues to spread in Puget Sound, far from any shellfish operation, due to the movements of pleasure boats "fouled" by tunicates attached to the hull. It is common at many Puget Sound marinas (for example: Pleasant Harbor, Des Moines, and Eagle Harbor as documented by the Washington Department of Fish and Wildlife). This should not be used to justify increasing the risk of adverse impacts from placing an additional 24 acres of surface area within the waters of Totten Inlet. Didemnum sp A is only found in Totten Inlet in south Puget Sound, primarily on Taylor's mussel raft. Every vector for this tunicate needs to be attacked and controlled before expansion should be considered.

The EIS's response to tunicates comments implies Didemnum sp A is unable to attach after 6 hours when it states: Fragments may only be able to re-attach within six hours and have to come in contact with hard substrate (Bullard et al 2007). Dr. Bullard and Dr. Reinhardt, author and co-author of the paper referenced do not agree with this statement (see note 3 below). It is the fundamental piece of the EIS on which a decision of no adverse impact is based on, without which the EIS cannot stand.

Evidence of Didemnum sp A being a current problem and the proposed addition of 58 rafts creating a risk not dealt with in any form is documented in the following:

1. The non-native invasive tunicate scientists are most worried about (Didemnum sp. A) was found on the Gallagher Cove mussel farm, described as being "heavily fouled" and clearly documented by Gretchen Lambert, tunicate expert in the photos noted above. (Bullard, Lambert et al, 2007). WDFW was so concerned about its spread they put specific conditions on the transport of geoduck seed grown at Taylor's mussel farm to minimize the risk of its being spread throughout the rest of Puget Sound (WDFW seed transport permit 12-1050).

2. What Taylor's harvesting methods show in the "Dirty Jobs" video clip is a disregard for dislodging tunicates allowing for the clumps to break loose and drift in the current (they move the rafts out of the group; put a flat platform under it; cut the ropes so the mussels fall down onto the platform; raise the platform from which water/clumps drains; they strip the mussels from the ropes, further dislodging any growth; then heave the mussels into bins for transport; then they lower the platform back down, allowing anything settled to drift off). Nowhere in their code of practice or in the conditions proposed is this action mentioned.

See:
http://www.youtube.com/watch?v=7v5a2M2xtuQ

Responses from those who saw this clip included:
Page Valentine with USGS: "The mussel harvesting methods shown in the video will result in tunicates being released into the water and can cause the spread of tunicates away from the site. This is especially true of colonial species because fragments of colonies are likely to contain viable individuals which can re-attach to hard substrate in a new location and continue to grow." (Note: Gretchen Lambert noted tunicates being poking at were native species.)

Gretchen Lambert had this comment on the Dirty Jobs video: "This is an older video; I first watched it at the request of Taylor Shellish Co. and my suggestion, even though I did not see any non-native tunicates, was that they put a short railing around the periphery of the barge to minimize anything sliding off when it is lowered back into the water with all those mussels. The railing could have small drain holes for the water to drain off when the barge is raised. I don't know whether they have done this or not, and it did not seem very important since I don't see any fouling of non-native tunicates." (Note: Gretchen Lambert first discovered the non-native invasive Didemnum sp A on Taylor's mussel farm in 2004 which was discussed in an article she co-authored with Bullard in 2007 and was also documented in photos taken by her, seen here:

Dr. Don Deibert with the Ocean Sciences Center at Memorial University noted this, emphasizing "could": "So, by stripping ascidians off of aquaculture lines, the workers could be creating [sic] fragments that might settle elsewhere. This is not to say that they are creating fragments,

2/12/2012
but they could be doing so."

3. The EIS is incorrect when responding to a comment about tunicates spreading, specifically in its discussion of Dv on page 2-12. This sentence leads to a belief that Dv will not survive after 6 hours: "Fragments may only be able to re-attach within six hours and have to come in contact with hard substrate (Bullard, Lambert et al. 2007)."

Dr. Bullard's response to my email about that sentence: "Appears to be somewhat incorrect. What we found was that a few fragments (10%) could attach in as little as 6 h. We did not specifically test to see if they could attach earlier. It is possible that they can. In general, however, it took fragments longer to attach, with ~75% attaching after 30 hours."

Co-author Dr. Reinhardt's response: "The interpretation provided by the EIS is however inaccurate. In fact reattachment can occur long as the colony does have the ability to grow (> 6 hours). We measured how long the colony needed to be in place to reattach. We found that the longer the colony was in place the greater the likelihood they would be reattached. The colonies we used had, in fact, been detached for longer period of time than the experimental 6h. This is because it took time the harvest the specimen and prepare the experiment."

What should have been studied and presented in the EIS is this paragraph: "Fragments have been known to survive for more than four weeks (M. Carman, Woods Hole Oceanographic Institution, 266 Woods Hole Rd., MS# 08, Woods Hole, MA 02543, pers. comm.). The fragments that are able to survive can reattach to suitable substrates. Experiments by Bullard et al. (2007b) have shown that many fragments can reattach in 6-12 hr with 75-80% reattaching in 30 hr." Martin et al, 2010

4. Discs used in mussel farming by Taylor are not controlled and are found throughout the beaches showing there are hard surfaces which drift from the rafts carrying with them any species attached to them, including Didemnum sp A. Gretchen Lambert (tunicate expert) suggested to Taylor they put a rail on their lift indicates to help contain objects on the lift after harvesting.

Don Deibel stated this (note "could"): "To the degree that the plastic discs are, or are not, fouled by tunicates, they could be a means of the tunicates spreading elsewhere. Once again, the emphasis is on the could. It is possible. How probable it is would have to be determined by on site research."

5. The EIS also notes there is only sandy sediments which tunicates cannot grow on which is, in part, true. Ignored are the large numbers of oysters being grown and their attendant grow out bags adjacent to the proposed site. Further, there are numerous geoduck farms along the Carolyn beach area to the north which use PVC pipes (the same material used in Bullard's "attachment" study) as well as nets which provide a "structure" for Dv to grow on. None of this was considered. The prevailing winds blow from the southwest, directing anything broken loose onto these shorelines where a habitat for Didemnum sp A to further establish itself exists. Finally, had there been a correct understanding of the life cycle of Didemnum sp A, the risk to the gravel and cobble shores at the mouth of Totten Inlet as well as those found in Henderson Inlet; Squaxin Island; and along Pickering Passage been considered. They were not.

It is clear the EIS lacked a complete analysis of Didemnum sp A. Without taking into account scientific evidence which shows this tunicate's ability to live over long periods of time, that it could be carried into the main body of the south Puget Sound where a variety of habitats conducive to its growth exist; that the process by which Taylor harvests its mussels do not consider the release of these colonies into the waters; and, that the surface area of this proposed farm is in fact immense all indicate the aquatic environment will be adversely impacted from this non-native invasive species.

Scientific papers noted above are:


"Rapid Assessment for Didemnum vexillum in Southwest New Brunswick" Martin et al, 2010 Canadian Technical Report of Fisheries and Aquatic Sciences 2282

My name is Kris Mansfield and I am very concerned about industrial commercial aquaculture such as mussel rafts. Clean water is critical to the survival of our precious Puget Sound. I believe that mussel rafts are destroying this delicate ecosystem. There are real problems with dead zones under these structures. There is another problem with non-native invasive Tunicates found at Taylor's mussel farms. Tunicates can reproduce fast and can crowd out or kill populations of our local native marine species. I don't believe this problem has been addressed.

I say NO to any expansion of these non-native mussel farms.

Thank you for listening!

Kris Mansfield
Project No. 961372 SSDP
Taylor Shellfish Company

February 13, 2012

I am here to voice my opposition to the Taylor Shellfish seafood factory slated to be built on Totten Inlet almost directly in front of a low bank waterfront residential neighborhood that has been in place for over 40 years.

Taylor Shellfish proposes to build their 11.25 acre floating seafood factory in the middle of a low bank waterfront residential neighborhood. The project is the size of approximately 10 football fields (700 feet by 700 feet as identified in the EIS) consisting of 58 floating raft factories. (a football field is 300ft x 160ft)

The EIS was limited to biological and navigation issues only – in short water quality.

I would assert that the permitting process must also include an independent analysis of the impacts upon the property values and quality of life of the long standing residents of this area as well as other waterfront properties visible to the project.

We have a long history of zoning laws in this country in order to avoid this very issue.

If Taylor Shellfish were proposing to build a factory on land in a neighborhood zoned residential we wouldn’t even be here today because the project would have violated the residential zoning restriction. I find it ironic that since it is being built offshore near the same residential neighborhood Taylor can skirt this issue.

The EIS states at Chpt 2 page 86, “If a property value impact analysis were prepared by an objective, credible source, specific to the potential effects of floating mussel aquaculture and audible from waterfront properties, this information could be submitted to Thurston County for consideration by decision makers during permitting process.”
I would remind the county, the burden of proof is upon the industrial developer Taylor Shellfish to prove no adverse impact upon the surrounding residential properties and surrounding residential property values as a condition of getting a permit, and the burden is upon the county to require this study as part of the permitting process.

The burden of proof is not upon an existing residential neighborhood that has been in place for over 40 years to pay thousands of dollars to hire real estate experts to prove potential damage from a prospective industrial project.

Our only remedy is to sue once we have been damaged.

To have limited the EIS only to the water itself and navigation was ridiculous from the beginning. It would be analogous to a prospective pig farm being located in the middle of an existing residential neighborhood and then only studying the effect the pigs have on the dirt under their feet while ignoring the effects on the 300 residential neighbors surrounding the prospective pig farm from noise, visual disturbance, smell and heavy equipment and workers.

In short the prospect of substantial damage to this neighborhood in terms of reduced property values and the quality of life is great. Its not rocket science. This is an industrial project encompassing 10 football fields.

Finally, I would like the EIS to produce an accurate 3D scale model of the fully completed project and its exact location superimposed on Totten Inlet. The current little red dot on the map is not informative or accurate as to scale of the project and its exact location on Totten Inlet.

An aerial Google satellite map of Totten Inlet with the project superimposed on the inlet and accurately scaled as to size and exact location would be helpful.
totten inlet - Google Maps

Google

Address Totten Inlet
Washington

Get Google Maps on your phone
Text the word "GMAPS" to 466453

http://maps.google.com/maps?f=q&source=s_q&hl=en&geocode=&q=totten+inlet&aq=&... 2/11/2012
Address: Totten Inlet, Washington

Google Maps

1" = 2000 ft
1/2" = 1000 ft
1/4" = 500 ft

http://maps.google.com/maps?f=q&source=s_q&hl=en&geocode=&q=totten+inlet&aq=&... 2/11/2012
Response to Comments Submitted by Ted Eggleston

Response to Ted Eggleston Comment #1: Whether or not there would be a potential impact on waterfront property values as a result of the installation of the proposed mussel raft within the view corridor of these properties was not a subject required for evaluation in the North Totten Inlet Mussel Farm Environmental Impact Statement. The Thurston County Hearing Examiner Findings of Fact, Conclusions of Law and Decision (June 18, 1999) limited the scope of this EIS to the biological and navigation issues listed in Draft EIS Chapter 1, Section 1.2 (page 1-2). The SEPA Guidelines also limit the EIS analysis to a discussion of environmental impacts (WAC 197-11-448(1)). If a property value impact analysis were prepared by an objective, credible source, specific to the potential effects of floating mussel aquaculture visible and audible from waterfront properties, this information could be submitted to Thurston County for consideration by decision makers during permit processing.

Response to Ted Eggleston Comment #2: With regard to unneighborly conduct, see the response to Nancy Eggleston Comment #3 (Final EIS Section 2.3, page 2-78). With regard to the mussel rafts being “potentially dangerous,” see the response to Irene Degler Comment #6 (Final EIS Section 2.3, page 2-72).

Response to Ted Eggleston Comment #3: It is unlikely that mussel farming will have worse consequences than geoduck farming because it occurs away from the more sensitive and visible intertidal zone in deeper water; the non-permanent, floating structures move over the bottom substrate with the tidal cycle; and the structures provide cover and forage for a number of fish and invertebrate species.

Response to Ted Eggleston Comment #4: The issue of cultivation of the “Gallo” mussels in Totten Inlet is adequately covered in Draft EIS Chapter 3, Subsection 3.3.1.3 Native Mussel Species (pages 3-36 through 3-38). Also see the response to Preston Troy Comment #1 (Final EIS Section 2.3, page 2-173). The exotic tunicate, Didemnum vexillum, is already present in Totten Inlet. See the response to Gendler & Mann Comment #16 (Final EIS Section 2.2, page 2-47).

Response to Ted Eggleston Comment #5: A Taylor Shellfish representative reports that the water depth in front of Paul Taylor’s house on Eld Inlet is too shallow for mussel rafts; however, he does have a landing, dock, and oyster beds in the tidelands in front of his home. Other Taylor family members have a variety of shellfish operations in front of their homes, from oysters to geoduck, as well as the infrastructure for aquaculture operations throughout South Puget Sound. Justin Taylor’s residence overlooks the Deepwater Point mussel farm in Totten Inlet (personal communication with Diane Cooper, Director of Regulatory Affairs, Taylor Shellfish, August 24, 2010).
The ITR process occurred over a period of 8 years (2001–2008) while the technical studies were being prepared. Key sections of these independently-reviewed technical studies are summarized in Chapter 3 of this Draft EIS to describe elements of the environmental baseline and potential effects from construction and operation of the proposed mussel farm aquaculture. Proposed, required, and other possible mitigation measures are also described in Chapter 3 for each element of the environment.

1.4 Description of the Proposed Action

The Preferred Alternative (Alternative 1) for the North Totten Inlet Mussel Farm is a 58-raft proposal that will occupy approximately 1.36 acres within an Aquatic Lands Lease area approximately 11.25 acres in size (see Figure 1-4). The lease area will begin about 550 to 600 feet waterward of the Mean Lower Low Water (MLLW) tidal elevation line, and will extend approximately 700 feet further offshore. The length of the lease area will be approximately 700 feet parallel to the shoreline. The proposed project area is illustrated in Draft EIS Chapter 2.

The species to be cultivated is *Mytilus edulis galloprovincialis*. Taylor has cultivated this species of mussel at its two existing farms within Totten Inlet since 1992 (Gallagher Cove) and 1994 (Deepwater Point).

Construction of the raft components will occur at a 130-acre upland site owned and operated by Taylor in Mason County. Each raft in the Alternative 1 configuration would be 30 feet by 34 feet in dimension. Rafts will be attached end to end (with 2 feet in between). It is anticipated that there would be two 8-raft units and six 7-raft units. The longitudinal axis of each raft unit would be parallel to the shore, aligned in a single row of four 2-raft unit groups extending waterward from the shore. There would be approximately 40 feet separating raft units within each group, and 70 feet separating each group.

The rafts will be constructed of natural, untreated lumber (Douglas fir), welded aluminum cross beams, and 55-gallon recycled food product barrels (for floatation devices). Synthetic “socks” and ropes will be suspended from the raft structure (see Figure 1-5). Each raft will have multiple grow-out lines suspended from it: approximately 720 lines, 16 feet long. The grow-out lines (an inert plastic mesh) will be seeded (by hand) with immature mussels that require approximately 14 to 18 months to reach harvestable size. Each raft unit will be secured in-place at both ends with nylon lines (rope) and concrete wedge anchors (see Figure 1-6). Predator nets will enclose the underwater features of the rafts to exclude fish, marine birds, and marine mammals. Material that falls into the nets from the rafts will be periodically removed for disposal on land during routine maintenance activities.

The estimated biomass at the time of seeding is 1,520 pounds wet weight. It is estimated that each raft will generate an average of 20,183 pounds whole body, wet weight (meat + shell – cavity liquid) for sale per growing period. The growing period averages 16 months (range: 14 to 18 months). It is estimated that the 58-raft Alternative 1 would produce an average of 877,963 pounds (whole body, wet weight) of mussels for sale each year. All processing will occur at the Taylor Shellfish Lynch Road plant in Mason County.

Mussel harvest from the rafts will not involve any dredge harvesting, tilling, or harrowing of bottom sediments.

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3 A CD of electronic files of documents produced during the Independent Technical Review process is available from the Thurston County Resource Stewardship Department upon request.

4 The lease area larger than the footprint of the mussel farm is required for the area of operations associated with the farm.
To whom it may concern:

Regarding Project # 961372 SSDP

I would like to state some of the many issues I have with the proposal of Taylor United's mussel rafts in Totten inlet. One major concern I have is the safety of recreational boaters who use Totten Inlet on a regular basis and more importantly the safety of the boaters who do not. Taylor has had mussel rafts at the mouth of Gallagher Cove for over ten years now. Not one of those rafts has ever been safe for a boater. They never installed any navigational aids to the rafts and in the dark they are completely invisible. Boats HAVE run into them in the past and they still fail to mark them. If the proposed rafts are to be installed in public waters and are never kept up to a safety standard, it will impose a huge risk of injury or death for any boater who chooses to venture down Totten Inlet. The placement of these rafts is in the roughest part of the bay, where swells can reach 4-5 feet at times. Rafts will definitely lose floatation, parts and equipment. They will also have a very high risk of breaking free all together. During a storm these rafts will become even harder to see due to the swells and an even higher risk to any boat on the water.

When my family rebuilt our bulkhead years ago we planned to have a boat launch installed at one end so we could launch at high tides. The State authorities told us we could not have any part of our bulkhead protruding out further than its edge because it would "impede boat traffic". Even though boat traffic would not be affected by our plans, even 10% of the time due to tides, we still had to conform to the law and were not able to install a ramp. The location of these rafts will be in the center of the inlet and will SURELY be impeding boat traffic. Why does Taylor not have to follow the same law?

Another concern I have is that Taylor shellfish pollutes the environment. We have put up with garbage on our shores for years now and these rafts will only make it worse. We have found floatation barrels that had floated ashore numerous times, along with other garbage from shellfish production. This garbage can float out the bay and litter a wide range of shores in Puget Sound. Why should us as citizens and tax payers have to clean up our shores by ourselves constantly due to Taylor United? It is unfair to us and the environment.

I am also concerned about encroachment. Taylor has, on numerous occasions in the past, trespassed on State property and when they left they clean the entire beach of all native species of shellfish to turn it into profit for themselves. What is stopping them from expanding mussel rafts past an invisible boundary overnight when no one is watching? The profit made off of any illegal expansion is worth plenty more than the fine they have to pay, so I believe this will happen even more often with the rafts.

If these rafts are put in, most of Totten Inlet will be completely useless and hazardous to the public. Don't favor commercial shell fishing over generations of families that have used this bay for decades, and are hoping to use it with future generations decades down the road. The destruction has to stop at some point. Please make it now.

-Chad Edwards
February 10, 2012

Thurston County Resource Stewardship Department
2000 Lakeridge Drive
Olympia, WA 98502

Re: 961372 SSDP – Taylor Shellfish Company

Thurston County Hearings Examiner:

The Squaxin Island Tribe submits for the record in this matter the following statement in support of the shellfish aquaculture project proposed by Taylor Shellfish Company.

Squaxin Island Tribe is uniquely positioned to offer perspective on aquaculture operations. The Tribe and its members have been involved in modern day aquaculture activities for generations including the cultivation of clams, oysters, and mussels, as well as finfish aquaculture involving various species of salmon.

From a longer-term perspective, Tribes have practiced aquacultural activities for thousands of years, always aimed at protecting the resource for future generations. Many of the fish and shellfish aquaculture activities practiced today have their origins in strategies conducted by the ancestral inhabitants of the Puget Sound region.

In addition, the Tribe has labored for many years to protect water quality and improve habitat conditions for aquatic resources in which the Tribe holds rights protected by treaty. The Tribe employs biologists and water quality specialists to monitor the status and trends of water quality in the marine and fresh waterbodies of the Puget Sound region. Through the vigilance of Tribal efforts, many improvements have been made in the local control of pollution sources. Just as a high standard of water quality is essential for the environment as a whole, it is also critical for successful production of food through aquacultural activities. The Tribe relies on these resources for its commercial, subsistence, and ceremonial well-being.
Properly sited aquaculture facilities can be an overall benefit to the marine environment. In fact, it is ironic that mussel rafts have actually been proposed and considered as a way to improve water quality in embayments where poor circulation and point source discharges from sewage treatment plants combine to exceed standards. Mussels and other shellfish capitalize upon the rich and productive waters of Southern Puget Sound. Part of this productivity is natural and some undetermined part is augmented by virtue of the actual discharge of pollutants from man-made sources like septic tanks and farm runoff, also known as non-point pollution. As such, shellfish populations are a regulating species, helping to consume and control excess nutrients added to the water from other sources.

The Tribe has monitored water quality effects from aquaculture activities for many years. Often, when there is an alteration of environmental conditions it represents an improvement. The same cannot be said about shoreline development. It is unfortunate that many shoreline property owners, often the most vociferous in their opposition to aquacultural activities, also are the most significant contributors of nonpoint pollution to the marine environment. It is for this very reason that the Tribe supports the Taylor Shellfish project. Maintaining a high standard for water quality is essential for aquaculture and acts as a deterrent to the more onerous types of shoreline development. If only all our neighbors were shellfish farms, our resources would be in much better shape.

Sincerely,

[Signature]

Jeff Dickison, Assistant Director
Natural Resources Department
Squaxin Island Tribe
Thurston County Resource Stewardship Department
Hearing Examiner Hearing / February 13, 2012
Project Number: 961372, Taylor Shellfish North Totten Mussel Farm
Sequence Number: 96-961372XC
Applicant: Taylor Shellfish Company

From: Kevin & Rita Byrd, Owner and Residents
3740 81st Ave NW
Olympia, WA

Citizen comment regarding the above reference project:

We urge you to deny this permit. The sole purpose of this endeavor for the applicant is for one corporation to make more money. It serves no other useful purpose either to the People of the State of Washington or to the environment of the Puget Sound. It only increases the likelihood of future harm to the environment.

We realize the so-called “scientific” conclusions of the EIS do not support our position. However, there are occasions when scientific theory does not square with common sense. Scientific opinion is only as valid and credible as the factual assumptions upon which it is based. The facts given to the scientists in this case are neither valid, correct nor credible. There is a spin being put on the facts, many of which are downright false and politically motivated. As an example of what we are saying, when this whole process began over 16 years ago, it became time for Thurston County to inspect the existing rafts, and review Taylor’s compliance with the existing permit conditions, including but not limited to, that the existing Gallagher Cove mussel rafts were not made out of creosote or other treated timbers. Shortly before the County inspection, we discovered large sections of a mussel raft that had been cut up and allowed to drift. We know this because a couple of these sections of the old raft ended up landing directly in front of my property. This section of raft was made of creosote. I have indisputable proof of what I am saying is true.

This is why we do not trust much of what the aquaculture industry tells us to be true. If they take actions to deceive Thurston County about their compliance with permit conditions, what else have they said or done to deceive people and government agencies about their operations? We have seen this particular Company drag steel grates along the bottom of the oyster beds of Gallagher Cove. This is dredging, and is not permitted by the regulations. We have seen them deposit gravel on the oyster beds, which is also not permissible. Aquaculture is not permitted to add anything to Puget Sound as part of their operations. I do not doubt that these actions are done for the purpose of increasing the profit of aquaculture, but there is no enforcement mechanism whereby these activities can be monitored or studied.

The proposed site of the North Totten Mussel Farm has long been declared to be a “shoreline of statewide significance” by the Washington State Legislature, RCW 90.58.030(2)(f), when it was enacted in 1972. All of the waters of Puget Sound have been declared by the Legislature to
be a national treasure. The government record should reflect a finding long ago of a study by
the Department of Ecology that declared Totten Inlet to be the last pristine inlet in Puget
Sound. Do we need a law to tell us that Totten Inlet is a pristine, national treasure?

Therefore, the various aesthetic and other complaints being made about the proposal are not
just based upon the experience and knowledge of just the private property owners living
adjacent to the area.

The aquaculture of mussels should not be evaluated in a vacuum, without considering all of the
other aquacultural activities being practiced in the vicinity of the proposed project. Otherwise,
the cumulative effect of all uses going on in the area on the water quality and the environment
is not being properly evaluated. This includes the predominantly residential use of the
shoreline in the vicinity. We have observed, more often than not, that the existing Gallagher
Cove rafts have structures and equipment on top of them. They are not maintaining the low
profile that is required under the permit conditions. Moreover, what is not even mentioned is
that there are several service types of rafts surrounding the mussel rafts, apparently part of the
aquaculture operation that were never contemplated or permitted. Further, the array of boats
necessary to service and tend to the existing mussel rafts have created, essentially, a marina of
watercraft. The effect of this marina should be studied and there should be a separate
permitting study done on that. If someone were to start accumulating the number of
watercraft that Taylor has in Gallagher Cove, outside of the rubric of “aquaculture”, that person
or entity would most certainly require a permit to be a “marina” and not just “aquaculture”.

The mussel rafts in Gallagher Cove have been there since the mid-1980’s. The DNR leases for
the location of these rafts are twenty year leases. While it may be possible to move the rafts
around from one location to another, the permitting requirements to move the rafts to a new
location periodically would undoubtedly be cost prohibitive, as each new location would most
certainly have to be separately evaluated as to impacts on environment and views, etc.. It is
also difficult and cost prohibitive to remove the rafts once they are in. In fact, none have been
removed since they have been put in. These rafts are, therefore, for all intents and purposes,
“permanent” and not temporary structures, as that term is used in the SMPTR Purpose for
Conservancy Environment.

A preferred use in a Conservancy Environment, such as this proposed project, is one that is
supposed to be “nonconsumptive” of the physical and biological resources of the area. The use
of the prefix “non” means just what it says, that it shall not consume the physical and biological
resources of the area. The use of this term does not suggest that one can evaluate the relative
size of consumption. It says NON consumptive. This project does all of the above from several
different standpoints. The project would consume a huge amount of space of the natural
waters in an area that is not used by similarly large floating structures. In fact, the size of the
raft array is unprecedented in the entire Puget Sound.

This consumption of open space in turn consumes much of what the human eye observes of
the natural beauty of the Puget Sound. Floating rafts are not much to look at from an aesthetic
standpoint, and a good argument can be made that they are, in fact, non- or anti-aesthetic in the context within which they are placed. We suggest that if someone—or anyone—were asked, whether they appreciate the aesthetics of these rafts whether one would receive a positive opinion. The rafts are what they are. They are boards floating over a vast space of water. At least, logs floating in water would almost be more attractive because it is not unusual to see a solitary log floating around the Puget Sound occasionally. Rafts the size of football fields that are visible within 360° of the site as far as the eye can see are not natural or attractive.

The mussels themselves are also very consumptive of the biological resources of the area. The aquaculture community and the scientists, who advocate on its behalf, admit that these mussels are very efficient filter feeders and consume large quantities of phytoplankton and zooplankton. By all these accounts, in a light most favorable to the aquaculture industry, these mussels literally “clear the water”. Humans like clear water. The organisms dependent upon the rich nutrients residing in the water might not care for clear water. Taken to its logical extreme, what is clouding the water is the rich nutrients upon which all organisms of the Puget Sound survive. These are nutrients that, if sucked out of the water by super competitive filter feeders, will not be available to any other organisms that rely on this same nutrient. It is probable that mussels will out-compete the other organisms. It still has not been proven or determined, even by reasonable scientific probability, what the effect the highly intensive mussel aquaculture will have on the competition between shellfish and other organisms dependent upon the natural nutrients in Puget Sound waters. It is for this reason the permit should also be denied.

This permit application will significantly increase the intensity of the existing aquacultural activities going on in the area. This will substantially degrade the existing character of the area. We have observed an increase in the upland traffic caused by large trucks and semi tractor trailers used to transport shellfish and equipment between Taylor’s headquarters and the 79th Ave operation which services the existing mussel rafts. We have been awaken many times at 1am or 2am by the aquacultural boats and industrial activities that go on pretty much 24 hours per day, 7 days per week. We have had to call the Taylor corporation out to retrieve their mussel rafts and large aquaculture boats that inevitably break free and wash up on shore.

We have observed semi-tractor trailers and other Taylor vehicles regularly access and drive on the beach on the 85th Ave. boat ramp. This activity should require a Department of Ecology permit. I doubt that they have one. These activities increase the deposit of petroleum, tire rubber, brake dust and other undesirable substances that wash into Puget Sound. We have also observed increased volumes of large commercial boat traffic on the water, with the wakes of the boats washing away sands naturally deposited on the beach by the tides. There have been fuel and hydraulic fluid spills directly into the water during these activities. We have observed increased intensity of oyster and clam aquaculture in the vicinity of the proposed mussel raft site. We have observed the introduction of oyster bags that are strapped down to the mud and the burying of geoduck tubes that all have an almost imperceptible effect on the benthic environment. What were once sand, pebbles and gravel is now muck and mud. How
can this area sustain all of the increased intensity of aquaculture, with all that goes along with it, in balance with the use of the same waters for residential, recreational, fishing and navigation uses? What is the cumulative effect of all of this increased intensive activity, in addition to now an intensive farming of mussels on an unprecedented scale?

The proposed use will permit more than “moderate” intensity, than should be permitted under the definition of a Conservancy Environment under the SMPTR. Tremendous volumes of biological waste are being deposited on the benthic environment underneath the rafts, as was documented by divers who observed the area under the Gallagher Cove rafts and testified in earlier proceedings as part of the record. These benthic environments are crucial to organisms that grow and thrive in the Puget Sound and are smothered if covered by waste created by intensive mussel aquaculture.

We are further concerned that if this permit is granted, there is absolutely no enforcement or policing mechanism in the event the conditions of the permit are violated in the future. We suggest that, in the event, this permit is granted on conditions, that certain enforcement conditions also be imposed. We suggest that a panel of 3, 5 or 7 citizens be appointed or selected to review complaints of violations of the mussel raft permit conditions. The make-up of the panel could include not only aquaculture representatives, but also local government officials and upland property owners having an interest in the matter. Our thoughts were that this aquaculture panel would meet periodically, and make decisions and give orders to the owner of the raft to take action to remedy any violations under penalty that they be ordered to stop the operation of mussel raft aquaculture and even being required to remove the rafts if there were repeated or flagrant violations. Any decision of this Panel or Board could be made appealable to the local Superior Court. This type of governing Panel could be created by covenants filed and recorded as conditions of the permit issuance. Some legal research may be necessary to determine whether it would have legal authority, but this should not be an obstacle, because it involves legal condition on the permit and would be subject to County regulatory process.

Our last comment is that we are disturbed by the EIS process. The process by which it was developed, while certainly thorough on its face, is seriously flawed. The Conservancy Environment, which is purportedly the most restrictive SMPTR designation of the area in which this proposed project is supposed to go, is theoretically the designation in which the least amount of development should occur. Instead, the proposed project being approved by the EIS will permanently, substantially and intensively impact the entire area. This does not pass the “smell test” nor meet any concept of common sense.

We urge the use of more common sense in this decision. The science used by the proponent of this project is flawed and, as far as we can see, is authored for the most part by a scientist, Kenneth Brooks, who is far from being unbiased toward the aquaculture industry. This gets back to our original point about the science only being as valid and credible as the factual assumption upon which it is based. The creosote timbers on our beach are proof that aquaculture will go to any length to deceive the agencies that regulate its industries. I have no
doubt that several crucial factual assertions are seriously misrepresented to the scientists who peer reviewed the studies utilized as a basis for the EIS.

We thank you for your consideration of our comments. We have been fortunate to have the privilege of using the waters of Totten Inlet in the vicinity of this project since 1982. We have been owners of property located on Gallagher Cove since 1996 and have made this our home since 2002.

If this permit is approved, there are many small aquaculture companies waiting in the wings to put in their rafts. The County would be hard-pressed to deny their applications. In fact, there are a couple small companies that have rafts already in the water that have been there for several years without permits just off of Miramichi Beach in Gallagher Cove. This is just plain wrong.

We urge you to deny this permit application once and for all.

DATED: 2/13/12

Kevin & Rita Byrd
3740 81st Ave NW
Olympia, WA 98502
Adams Lane Aquaculture History

(as observed by neighbors)

In 1979 homes were first built on the marine bluff along Adams Lane NW. These 23 lots included beaches down to the mean high tide, but not the lower tidelands. Due to the high bank the upper beach continues to exist in a relatively natural state with only two bulkheads on lots where roads descend to the beach. Historically, oysters were farmed on a parcel of tideland (the “Bush-Callow parcel”) between these bulkheads and extending south to a lagoon, known as Adams Cove. Currently owned by Taylor Shellfish, the Bush-Callow parcel is located in the prime inter-tidal zone for naturally growing oysters and clams, as it consists of small rocks, pebbles and sand.

Until the late 90’s, the oysters were grown loose on the beach without artificial gear and were harvested by hand. Seeded shells or small oysters were spread on the best sections of this area, using about half of the parcel area. These beds were left to mature without much intervention until the oysters were harvested by hand. The beds were then dragged mechanically with a boat and basket to dislodge remaining oysters embedded in the sand/rocks, and the beds were raked with a truck or tractor to prepare for new plantings. Although native vegetation and animal species on the surface of the beach were harmed in this process, there were sections of the parcel that were not being farmed so the wildlife seemed to repopulate easily. Clams were also harvested by hand in a few areas of the parcel above the oysters where the pebbles and sand are the right consistency for easy digging.

Taylor Shellfish began cultivating clam beds in the late 90’s by intensively seeding large areas and covering the beds with fine mesh screens to keep out wildlife that might eat them. The combination of how thickly clams were planted and the nets prevent the normal beach ecology from developing there. Taylor also began to stake out lines in additional areas of the beach and attach oyster bags to the lines in a continuous blanket. This technique kept oysters from sinking into the softer sand/mud so the lower tidal areas could also be farmed.

Slowly most of the inter-tidal environment has been covered with intensive planting and protective nets and bags. At first you would see starfish, crabs, snails, sea cumbers etc. on the nets, but these have all but disappeared, as well as the sea birds that used to feed on the beach and in the shallow waters, i.e. herons, kingfishers, gulls, ducks, eagles and shore-walking birds.

At about the same time, Taylor Co. began planting geoducks in the lower mudflats, which had never been farmed or harvested in the past. This entailed covering the tideland with up-ended PVC pipes with nets protecting the seed, which were left on the beach for 5-6 years. In later years the pipes were removed after a couple years. At harvest time a boat with a hydraulic fire-hose was used to liquefy the seabed to a depth of 3-4 feet so workers could stand in the muck and pull the geoducks out of their deep homes. If the tide is not out they will use divers to fire-house underwater, sending the muck into
the water to circulate with the tides. These geoduck beds have increased over the last few years to now cover basically all the lower tidelands in the inlet to the extreme low-tide level.

Obviously the ecological environment of tide flat sea-life is totally disrupted in this process of harvesting geoducks, and this is done repeatedly until every geoduck is found. The surrounding waters are cloudy for quite a while with sediments. Adjacent tidelands and beaches not owned by Taylor Shellfish are covered with silt repeatedly. As we are not marine biologists, it is hard to inventory these impacts, but we observe changes such as sand dollar beds disappearing and the discovering them under inches of new silt. We can’t quantify the impacts on fish that forage and breed on the tidelands, or the bigger fish that feed on them, but we know we no longer see the variety and quantity of fish we used to observe while wading, swimming and paddling along our shore. We don’t see flounders, dogfish and schools of small feeder fish anymore.

On the tidelands adjacent to our Adams Lane beaches, Taylor Shellfish has continually expanded the areas they are farming. A neighbor requested that DNR look into whether these areas in front of her beach were actually leased and permitted to Taylor Shellfish. There was no governmental response and Taylor Shellfish told us they had prevailing rights to the tidelands. Eventually it was proven that they had been trespassing and farming state tidelands illegally for years. At Adams Cove the Taylors used a backhoe to reroute the natural flow of the outlet, sand bagging it to run go around their beds.

Adams Lane residents have become very concerned about the health of the beach and tidelands as undisturbed beach and tidal areas with native ecosystems have disappeared, leaving no nearby refuge areas for sea-life to survive and repopulate disturbed areas. Aquaculture can co-exist with residents and wildlife if those making decisions keep balance and ecology as priorities.

And now after taking over the beach and tidelands they are asking for the near-shore waters also to cover with acres and acres of rafts and equipment. Residents will no longer be able to boat off our beaches or swim in waters polluted with mussel pseudo-feces. Instead of the stunning views of pristine Totten Inlet our neighborhood will look down upon an aquaculture industrial zone. The sea beds under the rafts will also be lost to native species. We anticipate more creatures will be eliminated intentionally as “pests” as they have been in the past.

This northern section of Totten Inlet is a very uniquely beautiful place. The beaches could be natural as our houses are upland on bluffs and there are very few bulkheads or structures on the shoreline. The expansive waters are open to sailing and yachting without any sign of cities or industry. Adams Cove has been preserved as a natural area by the community. The weather systems roll in from the Black Hills in the distance, and the sunsets are amazing. North Totten Inlet is a jewel that should be treasured and preserved for generations to come, not exploited one industry’s profit.

Fritz & Barb Mondau
8831 Adams Ln NW
Olympia, Wa. 98502
Hello,

I had planned to talk today but did not get fit into the schedule, which is understandable. I cannot return on Friday because I watch one of my grandchildren that day so my kids can teach. I hope you will accept the testimony I planned on using, below. Thank you.

Several years ago when my adult daughter was living with me, and recuperating from a debilitating illness, she and I would slip our water shoes on, lock arms and walk knee deep in the water out behind my house for exercise to strengthen her leg muscles. We did this a couple times a week for some time until I was told by shellfish workers that I was not allowed to be in the water in that area. Next I was hemmed in by PVC tubes that did not allow for me to pull my kayak out into the water at lower tide behind my home. Not long after that, my daughter's father was spun around in his kayak by shellfish workers as they came too close to his kayak in Totten Inlet.

I have been told that I have no business being on certain areas of the beach behind my house because it is private property. We residents routinely walk the beach, check our drainage from the bank, pick up trash, and simply want to be out there. This is why we bought our homes here. But over the course of time we have been harassed and made to feel unwelcome right on our inlet.

You have or will hear many stories about the poor stewardship of the industry. You have been shown photos. No one who is not involved in shellfish farming is monitoring the industry right now. They are not self-monitoring, as you can see from the photos and stories many of us have submitted. How are we to believe that Taylor Shellfish will be good stewards of more mussel rafts? The photos of clean, uncluttered, well-maintained mussel rafts are maybe what they looked like the very first day. We personally have never once seen them look like that. They are a dirty mess, they are storage for equipment, and they are unsightly. They each look like work stations.

If these mussel rafts are installed in Totten Inlet, our view of the sunset will be forever changed. Totten Inlet has one of the most beautiful sunsets in Puget Sound. As the sun sets behind the hills, light dances across the water and reflects in shades of orange, red and purple. Once the mussel rafts are installed, that view will change for many of us, forever. We will be affected by the stench that comes from these rafts, by the traffic of working boats going to and from the rafts, the lights that will shine through our windows, the sound of workers and the trash that will result from the rafts from more industry.

The SMA allows aquaculture in Totten Inlet but just how much? It is already over 90% farmed. We are saturated. What number is enough? Once these rafts are allowed in our inlet, where else in Puget Sound will they be installed? Industrial shellfish farming feels like a virus that is spreading. It spread over the last ten years in Totten and is now moving into other inlets.

If these rafts are installed our property values will go down. It will be harder to sell our homes. Our retirement will be greatly affected... all for the profit of one company. There is something terribly wrong about this. Because we would be so greatly affected by these rafts, we would surely work.
together to get our taxes reduced and hopefully recoup some of the losses we will incur. The frustration of residents on Totten inlet will grow as our opportunities to enjoy our own property and the inlet are reduced even more. Residents of Totten Inlet do not want these rafts, and that in itself should be enough. This is Totten Inlet, not Taylor Inlet.

I am very concerned about the changes that have happened in Totten Inlet since many of the studies were done. The accumulative effect off each project together is what is creating the loss of so much wildlife. The water looked alive when I first moved here. It now looks dead. I hope that someone will take into consideration that septic systems and water runoff is not what is causing havoc. We had septic systems and all of that back before the inlet was over-farmed, and there was abundant life to be found. The water looked clear. We could see to the bottom of the three and four feet of water when kayaking and watch crabs run on the sea floor. It wasn’t until the inlet became saturated with geoduck and more oyster and clam farms that we began to see everything disappear. I cannot imagine more farming.

Please take this into consideration.

Thank you,

Nancy Eggleston
February 14, 2012

To: The Thurston County Hearings Examiner

From: Preston Troy and Lee Ruddy

Re: Nitrogen Removal—Minimal removal in relation to the other significant impacts from the Taylor North Totten Mussel Raft proposal

The SMA clearly states, if you scroll down to aquaculture, "no net loss of ecological functions". If an activity results in a loss of standing stocks of fisheries, then there's a net loss of ecological function associated with that activity.


Section 1-Nitrogen as it relates to shellfish

The following information summarizes the nitrogen issue:

Shellfish as a means to reduce nitrogen impacts in Coastal Waters

Shellfish remove nitrogen when harvested because their shells and soft tissues have nitrogen in them. Their feces and pseudofeces also contain nitrogen, and some of this is removed through bacterial denitrification. But some of it also contributes to overall nitrification as well. The shellfish industry argument that they remove more nitrogen than they produce is included in the following two mussel raft assessments:


It should be noted that both of these studies show the nitrogen removal number varies widely, there are various factors that change the net nitrogen removal statistic, some of the data is based on a Hood Canal study that is a different water body and the discharge of nitrogen back into the inlets from the shellfish waste handled upland is not included in the analysis.

4.3.3.4. Regeneration of Nitrogen

Regeneration is the remobilization of nitrogen from feces and pseudofeces that have deposited in sediments. Based on the Rodhouse model, the amount of nitrogen released by the rafted mussels through fecal and pseudofecal production is estimated at 0.52 kg N/m² and 0.55 kg N/m² resulting in approximately 5,500 kg N yr⁻¹. This represents approximately 10% of the total nitrogen input in Totten Inlet. Unlike the excretion, not all of the deposited feces and pseudofeces are in an available form of nitrogen. A portion of these materials settle in the sediments below the mussel
raft, where it is broken down by either aerobic or anaerobic processes. The settled materials are referred to as biodeposits.

An important consideration of the effects of the proposed mussel raft on the Totten Inlet nitrogen budget is the removal of nitrogen through harvest. Based on the percentage of nitrogen entering the raft system, approximately 22% is transferred into harvested biomass. Approximately 3,400 kg N yr⁻¹ is removed with mussel harvest and 1,083 kg N yr⁻¹ is removed with the associated fouling community (presuming that the fouling community is removed from the inlet during harvest). Nitrogen removal by the NTI rafts represents 17 – 40% of the anthropogenic nitrogen introduced to Totten Inlet. An estimated 10,939 to 25,524 kg N/yr is predicted to enter Totten Inlet from human sewage related sources based on the formula used in the Hood Canal Dissolved Oxygen Study and Year 2000 Census data (Golder and Associates 2003; US Census Bureau 2000).

http://www.co.thurston.wa.us/permitting/devactivity/totten/itrc-process/6M%20MEC-WatersAndAssociatedBioticImpacts_Oct04.pdf

Pages 67-68—As stated above, nitrogen is also removed from Totten Inlet during harvest. Based on the percentage of nitrogen entering the raft system, approximately 22% is transferred into harvested biomass. Approximately 3,275 kg N/yr is removed with mussel harvest and 1,083 kg N is removed with the associated fouling community. As Brooks (2000) points out, this represents a small percentage of the annual point source and nonpoint source inputs of nitrogen using Budd Inlet. While very little of the discharge into Budd Inlet likely pass into Totten Inlet (LOTT 1998), the point that mussel harvest may help to offset anthropogenic sources of nitrogen is important consider.

Current investigations of depressed dissolved oxygen concentrations in Hood Canal, Washington have identified nitrogen as a contributing factor to eutrophication and enhanced algal growth (PSAT/HCCC 2004). Aside from oceanic sources of nitrogen, anthropogenic sources, particularly on-site septic systems are considered to be the major source of nitrogen into Hood Canal. Based on an EPA study of on-site septic systems (PSAT/HCCC 2004), much of the ammonia-nitrogen that passes through an on-site septic system is oxidized to NO3 and NO2, with 30% to 70% of nitrogen entering the groundwater. Once in the groundwater, the nitrates and nitrites are conservative and eventually move down-gradient into the receiving marine waters. An estimate for sewage-related nitrogen in Hood Canal is provided based on population in the watershed, annual nitrogen release from untreated sewage per person (average 9 mg/person/day), and the percentage removal by septic systems (30% to 70%).

The Kennedy/Schneider watershed is an area of population growth, particularly along the southeastern shore of Totten Inlet similar to the Hood Canal vicinity. Land use in this watershed is transitioning from rural/agricultural uses to residential uses (WDOE 2003a). Unlike Hood Canal and Budd Inlet, there is little data to support a detailed nitrogen budget from these sources for Totten Inlet. Based on estimates from WDOE (2002), stream/watershed input of dissolved inorganic nitrogen (DIN) to Totten Inlet is approximately 47,450 kg N/yr. This estimate does not distinguish between nitrogen sources.
Also similar to Hood Canal, much of this area is served by on-site septic systems. Based on the formula used in the Hood Canal Dissolved Oxygen Study and year 2000 Census data (Golder 2003; US Census Bureau 2000), an estimated 10,939 to 25,524 kg N/yr is predicted to enter Totten Inlet from human sewage related sources. On an inlet-wide basis, the nitrogen removed by the mussel raft system proposed for North Totten Inlet represents 17.1% to 39.8% of the nitrogen introduced by the on-site septic systems and 9.2% of the nitrogen projected to enter the watershed via the watershed creeks. It is important to note that the non-point sources of nitrogen are spread throughout Totten Inlet, whereas the removal of nitrogen by the rafts occurs in North Totten Inlet.

The mussel rafts may also be a localized source of nitrogen, through the transfer of seston to nitrogenous wastes. Approximately one-third of nitrogenous wastes are in the form of feces and are incorporated into the fouling community or in the benthic community. As discussed previously, this form of nitrogen may again become incorporated into the water column community over a period of time.

The mvcommission.org document states:

There are other ways to reduce nitrogen without negatively impacting public fisheries resources. That is, through regulations reducing or eliminating nitrogen sources from fertilizers and septic systems. Also, re-forestation along the shoreline with native firs (deciduous trees like Alders increase nitrogen). Water treatment plants, reducing farm runoff, not using fertilizers will reduce the nitrogen inputs.

Historically, there's always been many nitrogen inputs into Puget Sound from rotting dead salmon, dead animals, animal and bird feces, etc. There's no proof that nitrogen inputs into Totten Inlet are any different than they've ever been. It's not accurate to call it "excess nitrogen" because that assumes there was a baseline of nitrogen inputs at some point, and there is no baseline documentation to rely upon.

It is clear that mussel rafts reduce public fisheries resources, and therefore there is a net loss of ecological function and a violation of the SMA. The nitrogen removal is not the primary issue. The nitrogen removal from the rafts is relatively insignificant overall, the anthropogenic (human caused) nitrogen inputs can be better controlled through regulations on fertilizer and septic inputs, and these regulatory measures do not harm fisheries.

Section 2-Nitrogen being discharged back into Totten Inlet by Taylor Shellfish Operations

The attached Word document summarizes the waste water discharge permit Ecology issued for Taylor's Shelton plant, also attached. Page 12 of the permit
has the nitrogen amounts with the general operation described in the earlier part of the body. In summary, most of the water and nitrogen discharged-- drain back into Totten Inlet.


On page 7 is a map of the area, showing it is directly adjacent to the mouth of Little Skookum Inlet which is a finger off of Totten Inlet. This map shows the flow of surface water.

The total amount of nitrogen being reintroduced in theory can be taken up by 6 rafts (if 20,000 pounds/raft and 1% of mussel total weight is nitrogen).

The Taylor Samish Bay discharge permit is another permit that allows for a great deal of solids to be discharged back into the sound. This permit was reapplied for in December 2009. Further information has not been found as of this date.


Section 3—Summary of Impacts to be considered

Nitrogen removal data has been reviewed above, but does not override the significant impacts as summarized below:

1. Shading of vegetation
2. Fouling of the substrate changing natural habitat and species
3. Expansion of non-native invasive tunicates close to the mouth of Totten Inlet which is a serious threat to the health of Puget Sound
4. Depletion of zooplankton and fisheries resources which threatens forage fish and salmon recovery
5. Expansion of marine plastic pollution which is a threat to aquatic life at this location and as it travels to other parts of Puget Sound
6. Reduced low dissolved oxygen in an area of Totten Inlet noted by Ecology as an area of concern regarding low dissolved oxygen which especially endangers fish
7. Reduction of more than 11 acres of water surface for recreation
8. Reduction of value of homes adjacent to the mussel rafts and the increasing use of Totten Inlet shorelines for industrial operations
Nitrogen Removal: Is a 2% reduction in the total Nitrogen loading of Totten Inlet significant?

The Shoreline Management Act requires consideration of all facets of the Shoreline Management Act. If a variable is used in this balance, it must be put in perspective. In the case of a mussel farm's ability to remove Nitrogen, Roger Newell was very clear in his response to the high percentage of Nitrogen removal being portrayed:

Total anthropogenic inputs are likely to be larger than this due to riverine inputs from the watershed and air shed inputs. P.4, Scientific Review of North Totten Inlet Technical Reports, R. Newell, 3/17/08

NewField 2009's report notes: Of these mechanisms that influence nutrients in the ecosystem, only the removal of mussel tissue and biofouling organisms significantly alters the net sum of nitrogen available, though there is increasing evidence for some nutrient loss due to sediment sinks (Newell 2005). Other pathways represent re-allocations of the existing nutrients. P.25

Jonathan Davis testified January 18th before the Senate Environment Committee on a proposal to implement a Nitrogen "cap and trade" program and stated a "general figure of around 1% of the harvested weight would be how much Nitrogen could be used to determine how much Nitrogen would be removed.

The NewField 2009 report states: The amount of nitrogen removed by harvest is estimated to be 4,549 kg N/yr, based on the total estimated harvest of 399,074 kg whole body wet weight and a total nitrogen content of 1.14% (includes both soft tissue and nitrogen sequestered in the shell; Haamer 1996).

Biofouling used to remove Nitrogen is conditioned with this statement: "...(presuming that the fouling community is removed from the inlet during harvest)." Video clips of harvesting shellfish clearly show biofouling being stripped from the ropes and mussels, so this number is overstated. Further, as there is no resale value, Taylor's Shelton processing plant discards this waste. Through their waste water discharge permit a portion re-enters Totten Inlet via ground water flow.

The Department of Ecology's "South Puget Sound Dissolved Oxygen Study for 2006-2007" on page xiii shows the dissolved inorganic nitrogen input from streams being within a range of 131kg/day to 1,310 kg/day, or an annual loading of 47,815 kg N/yr to 478,158 kg N/day. Mindy Roberts with the Department of Ecology refined this range to extend out to 197,538 kg/day. These figures do not include estimates of on-site septic systems adjacent to the shoreline, but NewField 2009 notes: while sewage from septic tanks are estimated to contribute between 10,393 to 25,524 kg N/yr (Goldner and Associates 2003; US Census Bureau 2000) p.34.

Taking Ecology's estimate of stream input of 197,538 kg N/yr and the low end of NewField's range at 10,393 kg N/yr we have an estimated annual Nitrogen loading of 207,391 kg N/yr. Mussel harvesting removes 4,549 kg, a 2% reduction. Note: Biofouling numbers are not accurate and the excretion, feces, and pseudo feces numbers presented simply move Nitrogen from the water column to the area below the mussel raft. Further, as clearly stated in the NewField 2009 paper, "only the removal of mussel tissue and biofouling organisms significantly alters the net sum of nitrogen available."