

Noise/Vibration: (Posted 1/21)

I respectfully request that the following study be conducted concerning the proposed Longview Terminal expansion and related activities.

I am deeply concerned about the impact that the level of noise and vibration currently has in the Puget Sound and the Columbia River system due to shipping practices. I am even more concerned with the level of noise and vibration that will be increasing and occurring on a regular basis if the Longview expansion is allowed.

It is known to some extent that many marine species including, but not limited to the salmon, are sensitive to sound and vibration both above the surface and within the depths. It's also known that to some extent that human-made noise and vibration have a negative impact on marine life. Noise and vibration is known to potentially severely disrupt feeding patterns, communication patterns, reproductive patterns and even growth patterns of many species of marine life.

The Longview expansion, if allowed, will be engaged in intensive construction over the next several years and adding on at least 800 ships a year that will be thundering in through the Sound and Columbia River system, idling and loading on the Columbia River and then thundering back out of the Sound. This does not include the additional vessel traffic that will be associated with support operations like tug boats, increased Coast Guard presence, etc. It is also known that various areas within the Sound and River systems will act as echo chambers, amplifying the noise of ships movements. Sound and vibration impacts will not only come from the ship traffic, but construction of the Longview expansion and the daily operations of the pier and nearshore equipment and operations.

Using Cherry Point as an example, The Cherry Point Workgroup, in developing the Cherry Point Environmental Aquatic Reserve Management Plan (November 2012, p. 27-30), also expressed concerns about the effects of stress on marine life within the Reserve due to noise and vibration.

- Most commercial fish react to loud noise; these reactions are most pronounced in migratory schooling fish which rely on hearing to detect environmental cues, such as approaching predators.
- Physical impacts have been documented with construction project noise, such as pile driving (Laughlin 2005). Noise is expected to increase from construction and operation of the new pier.
- The proposed pier alignment encroaches on the Cherry Point herring prespawning holding area, making potential impacts of noise associated with vessel traffic, barging and berthing, and loading and offloading materials of particular concern.

- It is unclear how vessels frequenting herring spawning grounds or industry pier operations affect herring spawning success, feeding behavior, or individual health (Settlement, 1999).
- Further study is needed to comprehensively assess the impacts.

Sufficient uncertainty exists from published studies and local conditions that one cannot make a definite statement that ship noise does or does not have any effect. Additional study is necessary to judge the effects of current and future increases in vessel traffic. Research is necessary to ascertain whether underwater sounds like those found at Cherry Point can affect herring or other species of concern at any life stage. (Cherry Point Environmental Aquatic Reserve Management Plan, November 2010, pg 156)

Sound and vibration impacts could have a significant and cumulative adverse impact on the already delicate and compromised Columbia River system and Puget Sound ecosystems, affecting the food web from the grasses on up to the whales, social patterns of many species and also have negative impacts on our commercial and tribal fishing and tourist industries which are significant culturally and economically, especially here at Cherry Point.

I agree completely that this impact needs to be studied very thoroughly and the study needs to be specific to the Columbia River system for construction and ship traffic and the entire Puget Sound for ship traffic. It will also need to include the whole of the ecosystem(s), not just certain elements of it.

Thank you in advance for your time and consideration.

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Invasive Species: (Posted 1/21)

I respectfully request that the following study be conducted concerning the proposed Longview expansion and related activities.

I am very concerned about the current existence of invasive species being brought into area oceanic waters, the Puget Sound and the Columbia River system and the negative impact these species are already having on our local ecosystems. I am even more concerned about the potential increase of invasive species with the proposed Longview expansion.

It's known that foreign species are brought into local ecosystems through ballast water and on the hulls and keels of incoming ships and a myriad of other means. However, Ballast water has been identified by the EPA "as one of the most 'universal and ubiquitous vectors' for the transport and discharge of non-native species in marine and coastal areas (2008).

Some of these species may be harmless while others are not. The proposed Longview expansion will be increasing incoming ships from Asian waters (and possibly other areas) not only in significant numbers (at least 800 ships a year), but these ships will have extensively larger ballast tanks and hull areas for invasive species to be brought through.

Invasive species are already taking hold throughout the Sound and Salish Sea.

- The "2012 State of the Sound: A Biennial Report on the Recovery of Puget Sound" report by the Puget Sound Partnership (November 2012, pg 184) and
- "A Baseline Assessment of Priority Invasive Species in the Puget Sound Basin" report by the Washington Invasive Species Council (February 2011 pgs 39,67, 75 and 79), cited several examples of invasive species throughout the Puget Sound.

The Chinook salmon, which is the main food staple for our Southern Resident Orcas and a primary fish for our fishing industry, forage throughout the Salish Sea as juveniles. When they've reached maturity, they head out to the Pacific Ocean and eventually come back to their birthplaces to spawn. Invasive species could potentially have a negative impact anywhere along this feeding route.

Our marine food web is extensive and already compromised. Eel grass beds are in decline (invasive species are already taking over), which means a decline in the herring population, then the salmon population, then the whale population. This in turn will have a significantly adverse impact on our marine life and our fishing and tourist industries as well.

I agree completely that this impact needs to be studied very thoroughly and the study needs to include the entire area of ship movement routes.

Thank you in advance for your time and consideration.

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Climate Change: (Posted 1/21)

I respectfully request that the following study be conducted concerning the proposed Longview expansion and related activities.

The proposed Longview expansion's footprint will be significant. It will have environmental, social, health and economic impacts. These impacts will affect local, regional, national and global conditions. It will have impacts in the immediate future as well as the long-term future. In order to adequately and accurately assess the potential impacts of the proposed expansion we will need to consider, extensively, many things. There is one impact that is interwoven into all the issues and in all times and spaces. This impact is climate change. To properly and realistically assess the impacts of the GPT, we need to incorporate climate change into our thinking and assessments.

"We must embed climate change assumptions into our natural resource management plans and strategies to enable the most effective environmental restoration and protection possible. Accounting for climate change projections in these plans is important from both a cost perspective and a natural resource perspective, especially for our future generations. As a public official making decisions that impact not only our community today, but also millions of future Puget Sound's residents and their natural environment, I refuse to let future generations pay for the consequences of our current lifestyles. By taking steps today to limit climate change, we can save money, natural resources and the quality of life we all value for our region's future residents tomorrow. This is an imperative." Ron Sims, King County Executive, National Wildlife Federation "Sea-level Rise and Coastal Habitats in the Pacific Northwest: An Analysis for Puget Sound, Southwestern, Washington, and Northwestern Oregon," (July 2007, pg i)

Regional, State and local agencies and organizations are moving to find ways to address climate change and it cannot be excluded from the discussions surrounding any of the propose coal, gas and oil development projects. First of all, next to the Gateway Pacific Terminal project, Longview will involve one of the largest shipping port transporting overseas for consumption, coal, a fossil fuel primarily made of carbon (CO₂) that is significantly responsible for the greenhouse gas emissions causing the rising temperature of our planet. Besides contributing to the green house effect, coal burned overseas find its toxic waste residue carried on the winds across the ocean back to settle on Pacific Northwest waters and lands. Secondly, we are already witnessing the effects of that warming in the Salish Sea and the Puget Soun.

Climate change pressures in Puget Sound include changes in stream flow timing and volume, air and water temperature, loss of snow-fed water supplies, sea level rise, and ocean acidification. These pressures could have serious consequences for human health, including reduced water supply, losses to agriculture and forest industries, losses of fish and wildlife, impaired functioning of natural systems, and increased frequency, and intensity of extreme weather event such as droughts, floods, heat waves, wildfires, and heavy rain and snow storms. Other impacts to natural resources and Puget Sound communities will vary, but these are not as readily predictable. (2012 State of the Sound: A Biennial Report on the Recovery of Puget Sound, Puget Sound Partnership, pg 146)

". . . Potential impacts to the aquatic reserve from climate change and global warming include ocean acidification, sea level rise, and increased storm severity. Nearshore resources that are temperature sensitive, such as crab larvae and herring spawning, may be affected by increases in water temperatures. Projections vary, but range from a 7- to- 23 inch rise in global average sea level by 2090-2099. Climate change could result in increased coastal erosion, all or some of which may result in changes to species abundance and distribution. Sea level rise and increased erosion can increase pressure to install hard shoreline armoring structures. A reduction in the availability of tidal marsh/tidal flat habitats could occur, as sea levels rise combined with increased river flow increases the salinity of the nearshore area while decreasing the availability of tidal marsh areas. Commercial shellfish communities (e.g., oysters and clams) and migratory shorebird populations that

utilize these flats for habitat and feeding may also decline. . (Cherry Point Environmental Aquatic Reserve Management Plan, November 2010, pg 28-29)

Climate change is expected to have significant impacts on the Pacific Northwest (PNW). . . [other] Impacts include: changes in ocean upwelling, increased water temperature, and photo enhanced toxicity, all or some of which may result in changes to species abundance and distribution . . . sea level rise could increase the vulnerability of coastal areas to storms and associated flooding . . . A recent study that modeled the potential impact of sea-level rise on key coastal habitats in the Pacific Northwest estimated that the Nooksack Delta, Lummi Bay, and Bellingham Bay could result in a a 22-percent loss of swamp (including tidal swamp), a 22-percent loss of brackish marsh, and a 42-percent loss of estuarine beach. No information was available for Cherry Point, which has several scattered salt marsh habitats that could be affected by changes in salinity and rising water levels . . . The EPA states that commercial shellfish communities (e.g., oysters and clams) and migratory shorebird populations that utilize these flats for habitat and feeding also may decline accordingly. The commercial and recreational shellfish activities in the Reserve may also be affected by these changes. And changes in the composition of tidal wetlands could diminish the capacity for those habitats to support salmonids, especially juvenile Chinook and chum salmon (Glick, 2007). (Cherry Point Environmental Aquatic Reserve Management Plan, November 2010, pg 168-169)

What I request is an extensive and thorough study of the potential impacts of the Longview expansion on climate change and it's impacts on the Columbia River system, the Puget Sound and the rest of the Salish Sea watershed. We will need to determine how the Longview expansion will not only be a contributing force but could be a casualty of it as well. Some of the specific points to be studies would include, but not limited to:

- Ocean Acidification (eelgrass beds, herring populations, soil and microbial changes)
- Sea level Rise (impacts on the GPT facility, water treatment, discharges, etc and salinity changes.)
- Air, soil and water contamination of toxic substances coming from the unburned and burned coal
- Effects on entire the food web (within Columbia River sytem, the Sound and the Salish Sea)
- Effects of the loss of tidal lands, marshes, etc.
- Disruption of riverbeds and related ecosystems
- Effects on migratory and resident bird and other wildlife populations
- Surface and depth water temperatures on marine plant and wildlife (including insects and microbes)
- Changes due to the timing and flows of freshwater sources into the Reserve including the lowered ability of diluting toxic substances and contaminants or increasing their presence
- Physical coastline changes including erosion, swamping, flooding, etc
- Economic impacts of resources that will be compromised (water, tribal and commercial fishing, tourism, etc.)

Even more significant is cumulative effect of the proposition of several fossil fuel shipping terminals throughout the Pacific Northwest as climate change will be affected by and will affect each of the other facilities in similar ways. When adding the climate change impacts altogether, my guess is the results will be staggering for the Pacific Northwest. These studies and assessments need to be completed and thoroughly review prior to approving any of the proposed terminals. To approve any one of the terminals without these studies could be signing a death warrant for the entire Salish Sea and our combined goal is to save and retore it, not consign it to destruction.

While our knowledge of climate change may be limited, it's imperative for future generations that we make the best attempt we can to map out what's happening and what we can do to rectify the conditions that are threatening a vast majority of human and natural communities here at home and across the globe.

To the extent that it can be identified, quantified, and mitigated, uncertainty is a component of planning, not a reason to avoid planning. . . the natural complexity (variability in geographic space and in time, such as decadal climate variability) of these systems is a key

part of planning for the future. (The Washington Climate Change Impacts Assessment: Evaluating Washington's Future in a Changing Climate, A report by The Climate Impacts Group University of Washington (June 2009, pg 20)

Thank you in advance for your time and consideration.

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Water Usage: (Posted 1/21)

I respectfully request that the following study be conducted concerning the Longview expansion and related activities.

I understand that the Longview expansion project will be requiring the use of several million gallons of water daily, not only for basic daily operations, but to keep coal dust down from the propose two stockpile pads. I am concerned that the Longview expansion will be drawing its water from the Columbia River system.

It is my understanding that the Bolt decision and the State's "first in time, first in use" give the Columbia River Tribes priority over the waters of the Columbia River system. If the in-stream flow is insufficient to provide the the River Tribes what is needed to maintain the salmon populations, how will Longview be able to meet the standards set on keeping coal dust in check?

I would like to request that the appropriate studies be conducted (or completed) concerning the Columbia River system water resources, quality, use and distribution and the economic and environmental impacts and specifically what are the Longview expansion water requirements and how will those requirements impact the availability of water, not only for human consumption, but salmon and other wildlife.

It will be important to address these concerns as the Longview expansion's water requirements could severely disrupt the Columbia River system.

Thank you in advance for your time and consideration.

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Health Impacts: (Posted 1/21)

I respectfully request that the following study be conducted concerning the Longview expansion and related activities.

The Longview expansion is and will be a facility that could potentially create a number of adverse health concerns not only at the site, but through its associations, support adverse health concerns across the country and even across the globe.

It is imperative to conduct a full Health Impact Assessment. There are far too many questions that need answering and information that is needed to make a responsible decision regarding the Longview expansion.

Some areas of the proposed Health Impact Assessment should include, but not limited to the following:

Define all possible chemical elements, pollutants that come from the coal itself, from the equipment used to mine, transport and store coal, and any elements that come as a result of combining of coal and other natural elements (e.g. acid rain) that could have an adverse impact on health.

Contamination of water and soils due to coal handling (including burning) regionally and abroad, particularly mercury, lead, beryllium, arsenic and other toxic elements related to coal.

Rail-related noise that will impair sleep, increase stress, cause cognitive impairment, high blood pressure, fatigue and amplify mental health disorders and could have a significant health impact in the young and elderly.

Diesel particulate matter emitted by both the trains along the entire rail route and the ships that will be transporting the coal overseas causing lung cancer and other respiratory conditions (like asthma, emphysema, COPD and bronchitis), strokes, cardiovascular conditions, cognitive deficiencies. Studies need to address long-term and acute exposures.

Mining conditions and incidents that cause a variety of illness, particularly respiratory, injuries and death.

Nitrogen, CO₂, Sulfur Oxide and other elements that pose health risks.

Ability and efficiency of emergency medical personnel and equipment to reach those in need and provide services in a timely manner.

Potential for increased and more serious traffic and rail accidents, with the amount, size, length and speed of the coal trains.

Potential exposure to toxic elements due to spills and derailments.

Coal dust related health conditions.

Pollutant and chemical exposure based on different distances from roadways and railways.

Pollutant and chemical exposure based on variations in weather patterns (both normal temperature and temperature inversions)

Effect pollutants and chemical exposure has in immune systems.

Role of genetics in determining individual response to pollutants and chemical exposure (including diabetes, obesity, etc.)

Health impacts of soot from coal-burning, whether locally or abroad.

Vessel Traffic: (Posted 1/22)

It appears that shipping practices, policies and regulations in the Salish Sea are outdated and not keeping pace with the current and future demand and capacity. I respectfully request a comprehensive and cumulative study of vessel impacts throughout the Salish Sea. Due to the potential severity of negative impacts, the study needs to be inclusive of all vessel traffic, not just the proposed Longview expansion traffic and needs to include the whole of the Salish Sea (the Columbia River system, Straights, Sound, etc.) as the vessel traffic does not begin or end just at Longview.

There are a number of shipping issues that need to be investigated and policies and procedures re-examined for existing traffic and this needs to be done well in advance of adding any further new traffic, particularly the significant shipping requirements of the proposed Longview expansion. The expansion will add new dimensions to shipping traffic both on the River system and in the Puget Sound and we need to have the foundation of our shipping policies updated and solidified before taking on new problems, if we even can take them on.

General Environmental Impacts:

First and foremost is the fact that the current shipping routes throughout the Salish Sea are in environmentally sensitive waters and ecosystems that are already being compromised by unchecked human activity. There are substantial declines in some populations such as the herring, the Chinook salmon, Steelhead Trout, the Orca and others. There is an increase in coastal riparian and marine habitat degradation due to shipping traffic both in the traffic itself and the industries that have created and continue to support that traffic.

Our waters are home to several federally and state protected species. There are numerous wildlife strikes and an increasing presence of invasive species that further compromise the integrity of native species. There is also sea and riverbed soil disturbance from propellers and water displacement created by the waves of ships in motion. Noise and vibration of ships movements are also effecting the communication, reproductive, feeding and growth patterns and habits of marine life, plant, microbial and animal. Some of these impacts I have covered more in depth in other comments, but the background is necessary to include in this vessel traffic and potential spills comment.

Wildlife strikes

Because the Salish Sea waterways are the home to many different species of marine wildlife and also part of many species' migratory routes as well as human commercial and recreational activity, wildlife strikes is an issue that needs to be dealt with, particularly when we start talking about our whale population, although the strikes will include other species including dolphins, salmon, seals and more.

"In the interest of brevity, while recognizing that strike can impact many species, the discussion will be limited to whales. Of all the animals, they are often the most difficult to see, the hardest to avoid, and can also damage many medium to smaller size ships and vessels. (Cherry Point Environmental Aquatic Reserve Management Plan, November 2010, pg 157)

All types and sizes of vessels may hit whales, but the most lethal and serious injuries to whales are caused by relatively large vessels (generally 80 meters or longer). . . . With the highly endangered populations, or smaller population segments, significant impacts may occur. (Cherry Point Environmental Aquatic Reserve Management Plan, November 2010, pg 160)

Douglas et al (2008) reported on ship strikes in Washington State. In their research, the increased vessel traffic through northern Washington, into the Strait of Juan de Fuca, and to Cherry Point, Seattle and Tacoma is discussed. An estimated 11,000 vessels greater than 300 gross tons passed through the Strait in 1999, and it is expected to increase to 17,000 by the year 2025. As traffic will increase, the risk of strike also increases. The types of ships that call upon the piers at Cherry Point [and Longview], in general, are large tankers and cargo ships. While it is often assumed these ships travel at less than 14 knots, which would lower the risk of a strike, Douglas et al (2008) reports of a female fin whale on the bow of the "New York" Alaska tanker, which has a maximum speed of 16 knots. This tanker most likely struck the fin whale outside of the inland waterways and brought her in to the general vicinity of Cherry Point, near Ferndale, Washington. As Laist et al (2001) discusses the size of a ship and the speed are two risk factors, coupled with the increasing vessel traffic in an area used by whales, that can set the stage for a collision (Laist et al, 2001).

NOAA has researched ways to reduce the possibility of ship strikes and admits that this is a complex problem to address. No easy technological advances are present or are expected in the foreseeable future that would assist mariners in substantially reducing their chances of collisions. (Cherry Point Environmental Aquatic Reserve Management Plan, November 2010, pg 160)

With the increase in the numbers and sizes of ships, the more prevalent strikes will become both in the Salish Sea, Puget Sound and Columbia River system and their needs to be a way to report the strikes, care and disposition of injured wildlife and liability for the costs. There will also need to be monitoring and tracking of how the strikes will be impacting any given species. The more endangered the species the more significant even one strike will become to the survival of that species.

Habitat destruction and environment disruption of anchorage areas. (See below)

Vessel Traffic Management

Anchorage areas are limited and need to be accurately identified and studied to determine which ships will be able to use what areas and at what times and by who. Any anchorage areas will also need to be included in any environmental impact studies beyond just vessel traffic. The potential for environmental disturbance and destruction of these areas will also need to be studied as the number, type and frequency of anchorage needs may exceed our ability to accommodate without significant alteration or destruction of the area(s) ecosystems particularly given the size of and quantity of proposed ships anchors and chains. This will be particularly important with the depths of the proposed coal container ships being nearly 50' deep.

Given the current and proposed Longview traffic of at least 800 ships per year and the size of the vessels incoming expected to be some of the larger ships known, we will need to study, evaluate and update the need of having a continued tug(s) and pilot presence in the area. The potential cost and who will be responsible (government or private) to supply various different services will need to be determined as well.

We will need to study wind, current and weather seasonal patterns that will affect incoming, anchoring, staging and outgoing vessels including, fog, at any given point in time. In addition, existing procedures for weather-related conditions that could compromise vessel safety will need to be studied, re-evaluated and updated. Projected changes due to climate change must also be incorporated as changes will occur and we must be prepared to adapt to them. Since Longview is planning services and activities well out into the future, so should any preparedness and impact studies be projected as well.

Identify and study ship captain training and licensing, pilot training and licensing, tug master training and licensing for all vessels operating in the Columbia River system, Puget Sound and the rest of the Salish Sea including updates as necessary to accommodate the proposed Longview expansion vessel types and traffic. It will need to be established who will be responsible for financing any upgrades and what that cost and timeliness of modifications will be. This study must also look to the issue of foreign ship's personnel and interpreters. Example: "If we perform an error analysis of accidents that have occurred in our data collection period (1995 to 2005), we find that 75% (3 of 4) of the accidents have been preceded by human errors, while 25% (1 of 4) have been caused by mechanical failures." (Assessment of Oil Spill Risk due to Potential Increased Vessel Traffic at Cherry Point, Washington (August 31, 2008, pg 44). Given the increase in the numbers, size and toxicity of cargo being transported through the Salish Sea, vessel manpower competency will become critical to maintaining a safe and healthy Salish waterway.

This EIS report will need to include all Salish Sea vessel traffic, all types of vessel traffic, the proposed Longview vessel traffic numbers and any increased vessel traffic statistics from the other industries in light of projected increases in coal, oil and tar sands oil production and shipments.

Ship Construction

Shipping vessel integrity, both foreign and domestic, is an apparent concern even before the introduction of the larger sea-going vessels expecting to navigate our waters. Ships are designed and built as per the regulations of the country where it was built which will have varying construction quality and environmental standards. Of concern are those ships coming from developing nations particularly those ship flying under "flags of convenience" where maintenance and safety regulations are not enforced and it appears that a high percentage of our vessel traffic in the Salish Sea are ships registered under flags of convenience.

We will need to accurately identify which ships should be allowed into the Salish Sea and which ships to disallow. I am led to understand that the oilrig, Deepwater Horizon (massive Gulf oil spill of April, 2010) operated under a flag of convenience (Marshall Islands). Also, it needs to be determined which ships will be calling into which ports, particularly the proposed Longview ships and whether or not they will be flying under flags of convenience or Chinese flags, which puts the quality of ship construction and crew skill and training into serious question. It appears the additional ships proposed by the Longview expansion are single hulled, not double-hulled, as required to prevent devastating spills, it takes 6 miles for one to come to a stop and they are prone to catastrophic failures. They also contain massive tanks for bunker fuel storage. That means that if there is an accident in Puget Sound or the Columbia River system, there could be a catastrophic coal or bunker fuel spill. Additionally, for those ships that are allowed but there is question as to the level of their ability to safely navigate, some form of tracking, whether tug/pilot escort, etc. may need to be required and monitored.

Shipping accidents and near accidents

The narrow and complex shipping lanes between the Longview terminal(s) and the open ocean already have substantial traffic. Introducing nearly 800 additional very large ships per year on top of existing industry shipping traffic will make existing problems with shipping lane congestion substantially worse. This also doesn't include future shipping expansion plans of these existing industries. There is the potential for significant challenges with ship-to-ship collisions (commercial and recreational) and near collisions, ships running aground and other such incidents.

Tug, Coast Guard, and other emergency crew response times will need to be studied, especially in situations where there is a massive coal or bunker fuel spill. Currently there appears to be inadequate

response times to groundings and driftings due to the lack of available vessels, where those vessels are located, how they are equipped and the level of competency of their manpower in various situations.

With the addition of the larger coal vessels, existing updated or modified vessel traffic rules and plans will need to be studied and this will include reviewing speed limits, restrictions on ports/anchorage areas, traffic backup contingency plans, spill reporting and clean up, etc.

Spills and Other Marine Contamination Incidents

A cumulative study needs to be conducted on the possible negative impacts of any spills and any other form of possible contamination (e.g. fugitive coal dust) of these materials on water quality, marine wildlife and ecosystems and human health.

What will also need to be studied and updated is the federal and state requirements on agreements of liability on all vessels containing toxic cargos and fuels in the event of accidents and spills and the enforcement of those agreements.

Because of the existing and projected vessel traffic and toxic cargos being transported throughout the Salish Sea, spills are a very real threat. "Spill Prevention, Preparedness, and Response – Ecology's legislative direction is to implement a "zero spills" strategy for Puget Sound and other state waters. (2012 State of the Sound: A Biennial Report on the Recovery of Puget Sound, Puget Sound Partnership, pg 181). Existing and projected Longview vessel traffic will need to be incorporated into this strategy. Currently there are no safeguard measures for these vessels, such as tug escorts, to ensure protection of our waters from vessel collision.

Coal contamination of marine bodies around any of the terminals will occur and studies need to be done to assess as accurately as possible how much contamination is likely to occur, including worst case scenarios and what impacts that contamination will have on water quality and marine ecosystem health. During almost 30 years of operations, accumulations of coal in the marine sediments around Westshore Terminals grew to levels of 1–12%. Source: Ryan Johnson and R. M. Bustin, "Coal Dust Dispersal Around a Marine Coal Terminal (1977–1999), British Columbia: The Fate of Coal Dust in the Marine Environment," International Journal of Coal Geology, Vol. 68, No. 1–2 (August 2006), pp. 57-69 (Fig. 8).

A recent example of what could happen at Longview is the December 2012 Westshore Terminal mishap where a bulk carrier attempting to dock careened into one of the trestle, destroying parts of the pier and structures and equipment. Environmental consequences of the accident have yet to be determined but it is a good example of the conditions and situations that we will need to be prepared to address and it.

Since shipping is a derived demand, projection of future vessel traffic is inherently uncertain. (Assessment of Oil Spill Risk due to Potential Increased Vessel Traffic at Cherry Point, Washington (August 31, 2008, pg 52). If this statement is true, and I believe it is, the uncertainty in and of itself should require a "no action" response as there is far too much at risk and incalculable costs to allow for it.

Facility Impacts on the Marine

I respectfully request the following physical aspects of the existing and proposed Longview expansion be studied.

Water and Other Discharges

Water will be used in order to contain coal dust on 2 stockpile pads of coal. What will need to be studied here is the amount, composition and range of any run-off and the impacts that the contaminated run-off will have on local water supplies, affected soils and air quality. It will also need to include the life of the contamination and possible clean up scenarios along with associated costs and who will be responsible.

What also needs to be incorporated is the stormwater run-off of industries utilizing the Columbia River system, Puget Sound and the Salish Sea. What are the run-offs of existing commercial and residential activities? Are there other run-offs that need to be identified and accounted for? The cumulative run-off must be accounted for and its impact must be considered as a whole and it must be determined just how much the Columbia River system and Puget Sound can absorb before becoming severely debilitated. Signs now are indicating that we've already surpassed that point.

Other discharges in addition to water will need to look at chemicals such as oils, greases, cleansing agents and other toxic chemicals and metals.

Studies will need to be conducted to ensure that the existing Longview and proposed expansion do not contribute to any furthering of low dissolved oxygen acidification rates, which are already becoming apparent and difficult to counter

Pier Construction

Existing piers and their impacts on their respective areas should be studied first to see what impacts have already taken place and what any additional impacts the Longview expansion would have on the entire Columbia River system.

Soil disturbance due to heavy equipment used in construction, noise and vibration of construction equipment during construction will need to be evaluated. Operation of the pier(s) will also have specific impacts that will need to be looked including nighttime lighting, noise and vibration of incoming, idling, loading and outgoing vessels. What also needs to be studied is the potential changes in the wave energy or currents will have on the movement patterns of sediment, energy and water flows and thus wildlife movement, feeding and spawning patterns. Wave shading and propagation studies have not been conducted to my knowledge and will be an important factor in the health of the Columbia River system.

Construction of the new pier or expansion of existing overwater structures could degrade shoreline ecological processes, habitats and species proposed for conservation. Depending on the location, design, level of use, and management, overwater structures may have a significant impact on ecosystems and species.

Growing evidence indicates that aquatic plants and algae, including seagrasses and kelp, can effectively draw down carbon dioxide from the surrounding seawater, thereby increasing seawater pH. This is especially the case in semienclosed areas and those with slower water circulation. Additional evidence indicates that seagrasses and kelp can effectively sequester carbon from the water in underlying sediments following their decomposition, removing this carbon from the system. Preserving, and where possible restoring, Washington's abundance of native seagrasses and kelp offers an important means of remediating acidification and hypoxia in local waters. Ocean Acidification - From Knowledge to Action: Washington State's Strategic Response, Washington State Blue Ribbon Panel on Ocean Acidification, November 2012, pg 61-62)

Fugitive Coal Dust

Fugitive Coal will be a potential problem both inland and in the waters. Coal dust will not be able to be contained 100% of the time. What needs to be studied is the effect coal dust will have on both terrestrial life as well as marine life as the coal dust can be carried over land and over water. Some reports indicate that the Westshore Terminal emits 715 tons of coal dust each year and was impacted by a massive windstorm in April 2012 and photos are available of the huge clouds of coal dust that were swept away. We need to know what amount of coal dust will have a negative impact on any component (wildlife, plant life, etc.) of either land or water ecosystems. We need to know how far away the dust can have an impact and the degree to which the impact will occur and how it will get there and under what conditions and the economic costs of loss. This will include losses to the fishing, agriculture and tourist industries as well as any costs for clean up and restoration. Given this area's inversions, storms, wind changes, etc., it will be important to know how far spread any damage can be. Fugitive coal dust will come from several sources including the coal train cars, coal storage areas and loading operations.

Air Pollution

Studies need to be done to determine the existing level of air pollution being generated from the other industries located along the Columbia River system. These studies need to include weather patterns that will hold pollution stationary and for what periods of time and over what geography. They will need to identify the composition (particulate matter, sulfur dioxide, nitrogen dioxide, volatile organic compounds, and carbon monoxide, coal dust etc.) and what the health effects will be. Air pollution must be studied both from a facility standpoint and from vessel traffic. "Marine vessels account for 22 per cent of the NO_x emissions . . . Marine vessels are the largest single source of SO₂ in the airshed emitting 33 per cent of the SO₂ emissions. Agriculture is the dominant source of PM₁₀ (21 per cent)." (Cherry Point Environmental Aquatic Reserve Management Plan, November 2010, pg 165). The studies will also need to include the impact on ocean acidification, which is a prevalent problem throughout Puget Sound.
