Coastal Watershed Institute (CWI)

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"Our mission: To protect and restore marine and terrestrial ecosystems through scientific research and local community, place based partnerships."

13 February 2018

Senate Bill 6086

About: ban Atlantic salmon marine aquaculture
Committee: Agriculture, Water, Natural Resources & Park

We support legislation that removes net pens in Washington waters. Our comments on the current bill include, but are not limited, to the following. Additional comments may be provided in the future.

We feel strongly that both existing and any new proposed net pen facilities should be removed/prohibited from waters of the state completely, and relocated to upland, closed system facilities. These are a good start. Before finalizing the these bills, Legislators should update language to prohibit in-water net pens from marine waters and require that they be converted to upland closed aquaculture systems with a given sunset period of no longer than is reasonable to do so. Production at current locations should absolutely not continue, nor be increased.

The ecosystem impacts of net pens are well documented. The Millennium Ecosystem Assessment (2005) clearly identified aquaculture as a major threat, stating: "*The greatest threat to coastal systems is the development-related conversion of coastal habitats... through coastal urban sprawl, resort and port development, aquaculture, and industrialization*" (emphasis added).

Aquaculture, including net pens, are a significant source of marine plastic debris (Hinojosa and Thiel 2009, Thiel et al 2011, Arthur and Baker 2011). Locally, the current net pen site in Port Angeles harbor was one of the top source of marine debris in early Clallam MRC/NWS Commission derelict gear clean up efforts (Clallam MRC, personal communication).

Net pen ecosystem-scale impacts are significant. They concentrate and propagate parasites and disease for native stocks of salmon and forage fish (Morton et al 2011, Krkošek et al 2013, Morton et al 2008). Atlantic salmon net pens in British Columbia have recently been documented as the likely point of introduction of Piscine reovirus into Pacific Salmon ecosystems (Kibenge et al, 2017). They fail regularly and introduce non-native/nuisance species of salmon to wild systems. In September of 2017 a Cooke Aquaculture net pen failed and released hundreds of thousands of non-native species into the Salish Sea. Insecticides, herbicides, antibiotics, and high concentrations of fish feed used as a course of business with net pens all have impacts to the marine ecosystem (Dill

2011).

Salmon farm/net pen impacts to native fish are well documented, and catastrophic. Morton et al. (2017) documented significant infection of wild salmon with deadly piscine orthoreovirus associated with net pens. Connors et al. (2010) documented negative impact on wild coho production due to net pens. Morton and Symonds (2002) documented negative impact of net pen management practices on killer whales, *Orcinus orca*. Godwin et al 2017 documented significant impact of sea lice from net pens on feeding of juvenile sockeye. Similar impacts are a concern for forage fish (Shaffer et al in prep). Davis (2016) summarizes the link between salmon net pens and the collapse of wild salmon runs in British Columbia. Ford and Myers (2008) document a world-wild impact of net pens on wild salmon.

The Washington coast, including the Salish Sea, and in particular the Strait of Juan de Fuca are extremely important migratory, rearing, and feeding corridor-for many of the region's critically endangered and declining salmon and forage fish stocks. These include sockeye, Chinook, coho, sockeye, chum, cutthroat, steelhead, and bull trout, surf smelt, sand lance, herring, and eulachon. A number of critical forage fish, including herring, surf smelt, and sand lance, also spawn on the beaches here (Fresh 2006, Quinn, 2009, Melnychuk et al 2010, Moore et al 2010, Shaffer et al 2012, Parks et al 2013, Wefferling, 2014, Fresh et al unpublished data). Ecto-parasitic copepods are observed regularly on juvenile herring and sand lance along the central Strait nearshore (Shaffer in prep), indicating that impacts from the existing net pen facility are already occurring not only for salmon, but critical forage fish.

Ecosystem services analysis have repeatedly proven that protecting and restoring intact natural capitol systems-which when functioning don't cost a penny, and do not contaminate our marine ecosystems but instead contribute to the economic efficiency of our communities- are the only meaningful way to sustain our highly valued region (Flores 2014). In the context of salmon farms, protection means total avoidance of marine waters and ecosystems. This is possible thru upland and closed systems.

Because of the importance of our region's fish and ecosystems they depend on, the state of Washington and federal government have spent literally billions of dollars over the last two decades to restore the ecosystem and fisheries resources of Puget Sound. In 2015, the top 12 proposed restoration projects alone of Washington state's Puget Sound Partnership were estimated to cost $173 million dollars (Dunagan 2015). Projects have included hundreds of millions of federal and state dollars for the Elwha dam removals, the largest dam removal in the world, and ongoing efforts to restore and protect the Dungeness River and Dungeness Bay to restore and protect salmon and forage fish species. This project is exactly in the middle of both of these littoral cells.

Given the investment in restoring Puget Sound, the extremely high value of the fish resources and ecosystem services of our region, the damage net pen/salmon farm facilities do to these exact same resources, and the advances in land based/closed system salmon farm technology, it is therefore absolutely contra indicated and unnecessary to allow the region's salmon and forage fish resources to be exposed to the large scale harm that occurs due to net pens.

All of these impacts are completely avoidable by the system being redesigned to a land based/ upland, closed design. The technology for closed system aquaculture has been proven to be cost effective, and environmentally sound (Tal et al 2009). Given the environmental impact of in water salmon farms, clearly upland contained/closed systems are a logical and reasonable option. For these reasons, the existing aquaculture net pens should not be allowed to build a new in-water facilities. The existing net pens should be removed from Washington waters, and replaced only with upland and contained closed system aquaculture.

As a result of these impacts, and the clear risk net pens pose to invaluable resources, net pens are banned in Alaska- the world's last remaining strong hold for wild salmon, as well as Oregon and California. It is over time for Washington state to follow suit. In fact, citizens of Washington state have been trying to for literally decades. In attempts to try and protect Washington salmon and forage fish and the ecosystems on which they depend, a number of counties in Washington state are intending to/ or have already severely restricted and/ or banned net pens including the City of Bainbridge, Pierce County, San Juan Islands, Whidbey Island, Whatcom County, and Jefferson County. Ironically the biggest impediments to these efforts have been the Washington state Department of Ecology, and a mystifying absence of regulation from Washington department of Fish and Wildlife. Federal agencies such as NOAA fiercely support industrial aquaculture, -in direct opposition to the will of the majority of taxpaying citizens, continue to aggressively promote and permit these facilities. These agency impediments are-a clear indication of how things will go in the future if allowed to continue.

Bottom line: we don't need more study, we don't need more (ineffective and expensive) agency monitoring or 'consideration'. Science clearly tells us, and we KNOW these industrial aquaculture activities are lethal to our coastal systems and must NOT continue. We further know that that there is a win-win alternatives: UPLAND CONTAINED. If it costs the industry a bit more to develop the technology so be it. The tax payers of Washington state have invested enormous public dollars to restoring and preserving our native ecosystem.

Legislators need to be the leaders they were elected to be, stand up, and do the hard work modeled in other states (Alaska, Oregon and California) and immediately limit net pens to upland contained facility only. Legislators should update its BILL 6086-and all other bills proposed- to ban net pens from Washington shorelines and require that these facilities be converted to closed system upland aquaculture facilities in a timely manner, with a designated, prompt real time sunset deadline. Doing so will allow the marine environment to provide critical rearing and migratory ecosystems for a number of struggling and restoring species that are the focus of national, federally funded restoration and protection actions.

Respectfully,

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Executive Director, Lead Scientist

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