



# 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.”*

4 May 2016

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Comments on proposed project **NWS-2016-100, Icicle Acquisition Subsidiary, LLC. (American Gold Seafoods)** facility, Port Angeles Harbor and off of Morse Creek, Port Angeles Washington. See:

<http://www.nws.usace.army.mil/Missions/CivilWorks/Regulatory/PublicNotices.aspx>

Icicle /American Gold (AG) Seafoods has proposed the building a new in water net pen facility and production expansion, by 20%, to rear Atlantic salmon. The Icicle/AG project sponsor currently has an Atlantic Salmon net pen facility that is located in Port Angeles harbor, in the Elwha littoral cell. The proposed new facility location is 1.5 miles east and north, offshore of the Morse Creek river mouth and along the Dungeness littoral cell. The stated justification for this new facility is to avoid proposed Navy development adjacent to the net pens current location in Port Angeles harbor.

Our comments to this project include but are not limited to the following. Additional comments may be provided in the future.

We feel strongly that both the existing and the new proposed net pen facility should be moved from waters of the state completely, and relocated to an upland, closed system facility. A new in water facility, including as proposed, should absolutely not be built at all. Production at the current location should absolutely not continue, or 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

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net pen site in Port Angeles harbor was one of the top sources of marine debris in early Clallam MRC/NWS Commission derelict gear clean up efforts (Clallam MRC pers comm).

Net pens 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). They fail regularly and introduce non-native/nuisance species of salmon to wild systems. Insecticides, herbicides, antibiotics, and high concentrations of fish feed used as a course of business with netpens all have impacts to the marine ecosystem (Dill 2011).

Salmon farm/net pen impacts to native fish are well documented, and catastrophic. Ford and Myers (2008) document a world-wide impact of net pens on wild salmon. 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*. Davis (2016) summarizes the link between salmon net pens and the collapse of wild salmon runs in British Columbia. Net pens are banned in Alaska—the world's last remaining strong hold for wild salmon.

As a result of these impacts, and the clear risk net pens pose to invaluable 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 in their SMP updates including the City of Bainbridge, Pierce County, San Juan Islands, Whidbey Island, Whatcom County, and Jefferson County. Clallam County SMP is currently being updated. Given the length, current relative intact nature, and importance of the coastline of Clallam County, net pens should be listed as banned in the Clallam SMP also.

The proposal to move the existing net pens in Port Angeles harbor is not, as implied, a simple shift of an existing facility. It is a new and significant structure to be placed along the Strait of Juan de Fuca. This is an extremely high risk new location. The Strait of Juan de Fuca is the corridor thru which the majority water of the Salish Sea is exchanged. This reach of the Strait of Juan de Fuca is a very high energy open coastal environment with severe currents, wind, fetch and swell and wind wave conditions. Net flow direction along the southern Strait shoreline is to the east, and into Puget Sound (Mackas and Harrison 1997). There is no doubt that, if installed, these structures will fail (as they have done in the past in the relatively protected Port Angeles harbor).

Ecologically the siting of both the existing net pens and the proposed new facility site is extremely poor. The Strait of Juan de Fuca is a major migratory corridor for many of the regions salmon, forage fish, bird, and marine mammal species. The site is just offshore of the eastern edge of the Elwha drift cell and at the beginning of the Dungeness drift cell. Both reaches support world scale ecosystem processes, including sediment delivery, forage fish and salmon migration, and forage fish spawning, whale and bird migration.

The Strait of Juan de Fuca is an extremely important migratory, rearing, and feeding corridor-for many of the regions critically endangered and declining salmon and forage fish stocks, and many use shallow and inshore areas including those associated with the proposed project site. These include sockeye, Chinook, coho, steelhead, chum, cutthroat, and bull trout, surf smelt, sand lance, herring, and eulachon. Surf smelt spawn on the beaches adjacent and just down drift of this proposed facility (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 unpublished data), indicating that impacts from the existing net pen facility are already occurring.

Placing net pens at the new high energy location will not only assure increased structural failure, resulting in pollution and plastic and metal wreckage on the shoreline. It will also insert disease, parasite, and pollution vectors more directly into the head of the Salish sea water system as well as the migratory path of majority of Salish Sea salmon and forage fish species that use the Strait of Juan de Fuca as they transit to and from inland waters.

Ecosystem services analysis have repeatedly proven that protecting and restoring intact natural capital 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). The Ecosystem Services Valuation that Clallam County co-authored documented that the stretch of shoreline included in this project proposal has some of the highest value and intact services of the region that should be protected (Flores et al 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 has 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.

With this kind of investment in restoring Puget Sound, the extremely high value of the fish resources and ecosystem services along this shoreline, 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 will occur with the currently proposed new net pen project, or continue to be exposed to the existing facility.

The mitigation in the proposed project is grossly inadequate to address the harm these structures do to our coastal ecosystems. Specifically: The mitigation plan nowhere addresses the fact that net pens are a documented ecosystem scale source and vector of disease and parasites upon native wild salmon and forage fish stocks. Further, mitigation to address the fuel consumption to service the offshore net pens is not addressed, nor is an adaptive management plan for the inevitable failure of this system that will negatively impact Dungeness National Wildlife Refuge, one of the nation's most important wintering grounds for migratory water fowl.

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). It given the environmental impact of in water salmon farms, clearly upland contained/closed systems is a logical and reasonable option. For these reasons the existing Icicle/American Gold net pens not be allowed to build a new facility as proposed. The existing net pens should be removed from Port Angeles harbor, and replaced only with upland and contained closed system aquaculture –at a location off the shoreline/off the Ediz Hook.

Further, Clallam County should follow other counties lead and limit net pens to upland facility only. Clallam County should, in it's SMP update, ban net pens from its shorelines, which 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,



Anne Shaffer  
Executive Director, Lead Scientist

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