219-2211 West 4th Avenue
Vancouver, BC
Canada
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New salmon sea lice treatment threshold serves industry not oceans

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VANCOUVER: The amendment to Aquaculture Stewardship Council's parasiticide treatment index to manage sea lice allows a dramatic increase in the total number of chemical treatments permitted under the Salmon Standard — up to 350 per cent in some regions — and introduces the concept of 'conditional' certification.

It also removes the need for operators to consider potential impacts of chemicals used to control sea lice (a crustacean) on other crustaceans, like lobster, despite recent studies showing that parasiticide exposure can have negative effects on marine organisms other than sea lice.

"Periodic reviews of the Salmon Standard are supposed to be conducted to ensure that it is relevant, effective and reflective of industry best practice," Karen Wristen, executive director of the Living Oceans Society said. "However, with these amendments, what we are seeing is that the ASC is actually lowering their requirements to accommodate industry norms and increase in the number of certified farms, rather than maintaining a vigorous 'best practice' designed to protect the environment."

"Farms in Chile and Scotland, for example, with treatment frequencies as high as nine per cycle, will now be able to get conditional certification and use the ASC's 'responsibly farmed' logo whereas in the past the ASC would not allow them to do so. These farms will then have up to eight years — assuming no backsliding occurs — to eventually meet a global target limit," Kelly Roebuck, SeaChoice representative from the Living Oceans Society, said. The former PTI index typically permitted only two treatments per cycle.

"Ironically for Western Canada farms, the 'Global Level' metric will likely allow for an overall increase in the number of chemical treatments for sea louse control, while operators were easily able to meet the requirements under the previous standard," John Werring, David Suzuki Foundation senior science and policy adviser said. "This is troubling because despite everything these farms are doing to control this parasite, the number of necessary treatments is increasing year over year and, with these amendments, farms will still be able to maintain their certification under this new global standard."

Positive changes in the amendment include the addition of the anti-louse chemical hydrogen peroxide toward the treatment limit count, the requirement for farms to monitor benthic sediment for parasiticide residues and the requirement to publicly report chemical treatment types, amounts and frequency.

Despite no longer reflecting "best practice" in managing sea louse control on open net-pen fish farms, these amendments are still more rigorous than those required by most other aquaculture eco-certifications.

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Media contact:
Sarah Foster, SeaChoice National Manager
E: info@seachoice.org
P.: +1 (604) 916-9398 (Vancouver, Canada)

219-2211 West 4th Avenue
Vancouver, BC
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SeaChoice:
SeaChoice is a collaboration of three internationally recognized organizations — the David Suzuki Foundation, Ecology Action Centre and Living Oceans Society — that use their broad, national expertise to find solutions for healthy oceans. SeaChoice is a science-based, solutions-focused influencer, advocate and watchdog leading the next evolution of seafood sustainability in Canada. It is a member organization of the Conservation Alliance for Seafood Solutions and works with consumers, retailers, suppliers, government and producers to accomplish its objectives.

SeaChoice member groups have been active stakeholders in the ASC and Salmon Aquaculture Dialogue for 15 years. This has included steering committee representation during the original Aquaculture Dialogues, core participation in numerous ASC advisory and working groups, and active stakeholder engagement on ASC audits and projects.

Last year, SeaChoice's global review found 96 per cent of certified farms were able to meet the previous parasiticide treatment index, so the PTI score was likely not a barrier for the top 27 per cent of salmon farms globally (by production volume).

The absence of other eco-certifications from this news release should not be taken as an endorsement for those schemes.

Backgrounder:
The Aquaculture Stewardship Council salmon standard
The ASC salmon standard was created in 2012 following the multi-stakeholder Salmon Aquaculture Dialogue. It's assessed by criteria to eliminate or minimize the environmental and social impacts of aquaculture. Third-party auditing companies assess farm clients against the standard to grant certification. Version 1.3 of the standard was published in July 2019. Further information: www.asc-aqua.org

The parasiticide treatment index operational review
In 2015, the ASC initiated an operational review of the PTI indicator. The new amendment shifts from a single global metric to regional and conditional improvement approaches. A "Global Level" was defined as three treatments (or four when couple-treatments occur), but farms can become certified with higher treatment levels using the newly introduced regional "Entry-Level" thresholds. These were determined based on the 50th percentile of typical treatment frequency reflective of common practice for that region. Compared to the previous threshold (two to three treatments), the new entry-level threshold can represent up to a 350 per cent increase, depending on the region. Entry Level farms are expected to work towards meeting the Global Level, but these conditional improvements could take up to eight years.

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Comparison of the previous PTI and new amendment

Region	Previous PTI treatment frequency allowance	Entry Level treatment frequency allowance	Global Level
Canada (B.C.)	2* treatments	1	3**
Chile		9	
Faroe Islands		6	
Ireland		3	
Norway		5	
Scotland		9	

*Three treatments were allowed depending on a range of factors, including chemical toxicity, application timing and sensitive periods.
** Four treatments are allowed under the circumstance that a "coupled-treatment" is applied (where two bath treatments are applied consecutively within a short period of time).

Note: Eastern Canada is not included in the list of regions. It is unknown if or what requirements these farms will be held to.

Further information: https://www.asc-aqua.org/what-we-do/our-standards/new-standards-and-reviews/op-reviews/review-salmon-pti/

Parasiticides and lobster impacts
The treatment amendment removes any consideration of potential parasiticide impacts on lobsters and crustacea.

Burridge and Van Geest (2014)[1] noted deltamethrin as "extremely toxic" and cypermethrin as "very toxic" to crustaceans. The report also noted Azamethipohos could cause sub-lethal affects, as well as delayed spawning in female lobsters with short-term repeated exposure. Page and Burridge (2014)[2] estimated toxic concentrations of deltamethrin could be lethal to lobsters up to 10 kilometres from the location of release for several hours. Azamethipohos was found to have lethal concentrations, with potential hazardous effects to lobster, hundreds of metres away from the release. Couillard and Burridge (2015)[3] found azamethiphos exposure had "both direct effects on neurological function and energy allocation and indirect effect on ability to cope with shipping stress could have significant impacts on lobster population and/or fisheries." A study by the Scottish Aquaculture Research Forum assessing the effects of emamectin benzoate on benthic crustacea around salmon farms, found

[1] Burridge, L.E., and J.L. Van Geest. 2014. A review of potential environmental risks associated with the use of pesticides to treat Atlantic salmon against infestations of sea lice in Canada. DFO Canadian Science Advisory Secretariat Resource Document 2013/050(IV): 25 pp.

[2] Page, F.H., and Burridge, L. 2014. Estimates of the effects of sea lice chemical therapeutants on non-target organisms associated with releases of therapeutants from tarped net-pens and well-boat bath treatments: a discussion paper. DFO Can. Sci. Advis. Sec. Res. Doc. 2014/103. v+ 36 p.

[3] Couillard, C.M., and Burridge, L.E., 2015. Sublethal exposure to azamethiphos causes neurotoxicity, altered energy allocation and high mortality during simulated live transport in American lobster. Ecotoxicology and Environmental Safety, vol. 115, pp. 291-299.

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significant reductions in crustacean abundance and richness at the cage edge, Allowable Zone of Effect and reference stations (SARF 2016).[4]

[4] SARF098: Towards Understanding of the Environmental Impact of a Sea Lice Medicine –the PAMP Suite, 2016. A study commissioned by the Scottish Aquaculture Research Forum (SARF). http://www.sarf.org.uk