# Gloria Charland

I support the intent of your general proposal to:
1) revise monitoring requirements around DO and some types of treatment to reduce P,
2) clarify treatment timing windows,
3) increased flexibility on aquatic herbicides
4) add lanthanum=based control of P,
5) update permit requirements to be more consistent with state and federal laws.

I have included specific comments on specific elements of the text.

From permit language:
Comment or suggestion
1
Permit condition S3.A.1. The application of pesticides must not cause or contribute to lower water quality standards,2 and S3.B. use of -410
The text in S3.B seems vague as to the level of non-attainment of water quality narrative and numeric conditions.
2
S3. D.1 and D.2, measures to avoid lower dO include removal of weeds and avoiding treatment when lake is warm etc.
This is important because lower DO in lakes that may be subject to HABs from low DO may release sediment phosphorus.
We recommend adding a link to the Ecology Water Quality Atlas that shows where water quality is a problem.

3
S4.D implied there's no need to consult with WDFW if applying to a ditch.
WDFW should be consulted as wildlife and fish use ditches. A 2014 paper by Tabor and Waterstrat describes use of ditches by a rare fish calle dthe Olympic mudminnow.
4
Special Condition 3 states that the cumulative percentage of the littoral zone where herbicides may be intentionally applied must not exceed the amount allowed below: a. In water bodies up to 15 acres in size, the Permittee may intentionally apply herbicides to no more than 75 percent of the littoral zone. b. In waterbodies over 15 acres and up to 50 acres in size, the Permittee may intentionally apply herbicides to no more than 60 percent of the littoral zone. c. In waterbodies over 50 acres and up to 500 acres in size, the Permittee may intentionally apply herbicides to no more than 50 percent of the littoral zone. In waterbodies over 500 acres in size, the Permittee may intentionally apply herbicides to no more than 30 percent of the littoral zone
Changes in litroral vegetation can change predation rates on salmon. See
page 59 or 60 of
(https://www.govlink.org/watersheds/8//pdf/WRIA8PredationSynthesisReport.pdf).

So, I encourage the Washington State Dept of Ecology to consider doing a Tier 2 review. In

particular, for each lake, describe the history of use of chemicals, whether it has worked. To protect salmon,
describe the literature that supports that we can reduce that much littoral vegetation without lowering DO or increasing predation risk.
5
S6. Monitoring of dO and temperature says the dO must be monitored on the top and the bottom This is an important factor that Ecology has required of permittees However, is typically done during the day however DO lowers at night. Can you address this in the permit text.
6
S6. b. adds requirements for testing 2 weeks, a month and quarterly
Thank you. This seems important to learn more about how aluminum sulfate influences water quality and if it is re-released over time, particularly in lakes with high humic substances.
7
General Conditions G3.A.2. is important because it says that applicants should obtain a permit only after sharing all relevant facts.
We encourage Ecology to develop an easy to use databse for its permit writers that includes relevant facts on each lake, river or water body that herbicides and algaecides are discharged into.
8
The definition of surface waters of the state are described on page 47.
We believe that waters that are not wetlands also contribute discharges to water bodies of the state of Washington. We encourage WA Dept of Ecology to further describe surface waters. A document entitled 'Proof of landowners unreasonable interference with surface waters' available at Westlaw, further defines surface water laws in this state.
9
Appendix C on page 50 describes fluoridone mgt plans and properly asks applicants to list animals and fish etc.
Listing animals and plants can be difficult for some. The WDFW PHS maps and info are sometimes masked to protect locations of sensitive animals.
10
There is a list of herbicides approved on page 16 of the permit.
We encourage Ecology to review whether some of those herbicides may be similar to the photosynthesis-inhibiting herbicides referred to by Lurling and Roessink, who describe how photosynthesis-inhibiting herbicides may promote cyanobacteria. To prevent cyanobacterial blooms, Please elaborate on the type of herbicides that promote cyanobacteria https://pubmed.ncbi.nlm.nih.gov/16540149/.
For instance diquat is approved but it is a photosynthesis inhibitor. The article above said that a photosynthesis inhibitor herbicide promotes growth of cyanobacteria.

Comments on fact sheet.

The factsheet is for 2021. (Page 1 of the Fact Sheet)
Please update for 2026 permit which is different from 2021 fact sheet.
1
Ecology will NOT revise the original fact sheet after it publishes the notice. (page 1 of fact sheet)

If a permit changes in its technical requirements it seems pertinent to revise the original fact sheet. We believe Ecology should update the fact sheet after receiving public comment.
2
Page 4 of fact sheet describes how dying plants deplete dO.
Good, but there may be lake-specific information on dissolved oxygen.
3
Page 5 describes how much algae is beneficial, may be a nuisance but not a public health risk
Great. This is important for people to understand!!
4
Page 5 describes how cyanobacterial blooms can be toxic and phosphorus contributes to algae growth.
Great. But this could be improved by elaborating on how herbicides may create low dO and increase P levels in the water column, contributing to algal blooms.
5
Page 7 describes some legal cases.
Improve by updating with recent cases
6
Page 11 describes when a Tier 2 analysis is done. I believe it implies that a Tier 2 analysis won't be done for high quality water bodies that are going to have a lowering of water quality
It is alarming that a Tier 2 analysis is not done if water quality is going to be lowered in lakes with high water quality. This baffles me. What if those water bodies have listed species? It is unclear that it is in the public interest to degrade water quality that is high quality.
7
Page 12 says:

'Individual actions covered under a general permit do not need go through independent Tier 2 review. Ecology considers is important that the public have the opportunity to weigh in on whether individual actions are in the overriding public interest. The antidegradation rule establishes a refutable presumption that they do, but only through a public notice of intent to provide coverage and expected compliance with antidegradation does the general public have an opportunity to question individual actions.
Please rewrite this statement about Tier 2 review in 'plain talk'. We support the creation of additional review of impacts to water bodies and review of whether there are other ways to reduce impacts to water bodies.
'No Tier 2 review' means there is no additional review of impacts to waters of higher quality from projects that are new or about to be permitted.

People care about fish and wildlife and lake use and avoiding the extensive use of chemicals in lakes.
Can there be increased outreach on the public notice of intents to provide coverage? Social media. No one uses newspapers.
9
Page 12 mentions non-numeric water quality effluent limits.
Please clarify whether these are narrative criteria.

Primary contact recreation and Boating are only 2 of many uses of waters (WAC 173-201A-200(4). So is wildlife habitat (WAC 173-201A-200(4). So is Warm Water Species should then include

Olympic mudminnow shouldn't it? Please incorporate some level of narrative criteria for non-numeric fish and wildlife habitat in ditches which may be a surrogate for lost habitats for Olympic mudminnow.

10

reference to use of imazapyr is somewhere in this permit

As a fyi, the use of imazapyr only temporarily controlled parrotfeather in a paper by Kuehne and olden in 2015, who also found mudminnow in weedy places.

11

Page 12 mentions non=-numeric water quality effluent limits.

We presume then that these are narrative standards. In site-specific places, aquatic vegetation is important habitat for aquatic wildlife and non-salmonids. Can there be some language added to protect the DO and vegetation conditions needed by the Olympic mudminnow in Western Washington. The Olympic mudminnow is a fish that occurs in the Chehalis Basin and a few other places in Western Washington, including roadside ditches and often with standing water. It tends to occupy places with low DO and dense vegetation (see Adey et al 2018 page 271). On page 273 of Adey it says that the mudminnow in Wisconsin are protected by dense vegetation. Yet, herbicide reduces dense vegetation.