NORTHWEST RESOURCE LAW PLLC

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Via Email and U.S. Mail

Rich Doenges
Ecology Southwest Regional Office
P.O. Box 47775
Olympia, WA 98504-7775

Re: WGHOGA comments on tentative permit application denial

Dear Rich:

On behalf of the Willapa Grays Harbor Oyster Growers Association (WGHOGA), we submit the enclosed technical memorandum and comments on the Washington State Department of Ecology's tentative denial of WGHOGA's application to use imidacloprid to control the burrowing shrimp infestation that is destroying its members' farms. When we first sat down to discuss this application back in November 2016, WGHOGA implored Ecology to let science drive its decision-making process. While I think all of us can acknowledge the controversial nature of this application, I still believe sound scientific reasoning and strict adherence to the highest scientific standards should have driven Ecology's decision-making process. Unfortunately, as evidenced by the issues detailed below, it seems like Ecology has cast aside objective, rational science, and has instead chosen a predetermined path that will not address the grave economic and ecological harm caused by this shrimp infestation.

To be blunt, the tentative denial is based on unsound science. Ecology has committed errors in applying basic scientific and toxicological principles such as using a "toxic endpoint" derived for surface water to evaluate impacts to sediment; ignored results of field studies and data generated by those studies that are not supportive of denial of the permit application; and engaged in interpretative gyrations when simpler explanations of empirical data dictated a different conclusion. These errors are detailed below and outlined fully in the technical memorandum accompanying this letter.

A. Ecology ignores multiple field studies to conclude that the proposed treatment would violate the Sediment Management Standards

In the memorandum supporting Ecology's tentative denial, Ecology, for the first time, concludes that the proposed treatment of burrowing shrimp would result in violation of Ecology's Sediment Management Standards due to "adverse effect to biological resources within the sediment impact zone above a minor adverse effects level" (B. Rogowski, memo of April 4, 2018). This conclusion is based on flawed scientific analysis **and ignores multiple on the record conclusions by Ecology to the contrary**. As more fully described in the attached technical memorandum, and as Ecology is aware, there were multiple studies performed under Ecology oversight by WGHOGA and independent researchers over a number of years during the investigations of using imidacloprid to control burrowing shrimp. Those studies include three trials in 2011, four trials in 2012, and one trial in 2014.[1]

Of those eight total trials, seven met Ecology's stated criteria for compliance with the Sediment Management Standards. Ecology analyzed all eight of the trials in the Final Environmental Impact Statement that it now is purportedly supplementing, noting that for two of those trials in (in Bay Center, Washington):

> "*Regardless, the **analysis of all the data** from this area **consistently failed to find a treatment effect**. That is, the invertebrates on the **treatment and control sites** were similar enough to one another that the data **showed no statistical differences** after 14 and 28 days, demonstrating **there was either no effect, or effect with recovery and recolonization**.*" (emphasis added, FEIS page 2-42)

In 2012, four more trials were performed. Again, in the Final Environmental Impact Statement, prepared by Ecology and part of the record here, Ecology concluded that:

> "*In general, non-target **effects on** the epibenthic and benthic **invertebrates from imidacloprid were absent to minimal** based on the statistical analyses requested by Ecology.*" (emphasis added, FEIS page 2-46);
>
> "*Minimal effects to epibenthic and benthic invertebrates means that if these organisms are affected by imidacloprid, they recover and recolonize quickly (i.e., within 30 days).*" (FEIS page 2-46); and,
>
> "***The composite result from the analysis of invertebrate endpoints is that imidacloprid application exhibited limited effects in both space***

[1] Ecology's website currently makes a statement about the 2014 data not being available for review during the preparation of the 2015 EIS. This statement is false, and those data were included in an appendix to the final EIS and Ecology's analysis of those data are discussed more fully in the accompanying technical memoranda.

> ***and time***. *In most comparisons of data from the treatment and control plots,* ***a treatment effect of imidacloprid could not be demonstrated*** *for the invertebrate endpoints being tested, (see Hart Crowser 2013 and Booth 2013 for more details).*" (emphasis added, FEIS page 2-46)

Finally, in an appendix to the FEIS (finalized in 2015, after all the field trials had been conducted), Ecology wrapped up its understanding of imidacloprid impacts to benthic organisms by stating:

> "***To date experimental trials of imidacloprid have not shown significant impacts to non-target organisms. Sampling results have not exceeded the "minor adverse impacts" level in all but one sampling event. Testing data has shown that significant impacts have not been observed on the treated beds, and therefore won't be seen on or around the treated beds.***" *(FEIS 2.8.3.5).* (emphasis added, FEIS page 360, Appendix F page F-13)

Since that time, nothing has changed. No additional studies of imidacloprid in Willapa Bay or Grays Harbor have been performed. Despite the state of the science being the same with respect to empirical data on the impacts of burrowing shrimp infestation treatment using imidacloprid, Ecology does a complete reversal on all its prior analysis and conclusions in the FSEIS and the Rogowski memorandum supporting the denial of WGHOGA's application. We were especially perplexed that the Draft SEIS made findings similar to those in Ecology's EIS and written correspondence. Only the FSEIS reversed that substantial body of Ecology's findings.

B. Ecology applies a scientifically indefensible standard in concluding that there will be off-plot impacts due to water-based exposures from WGHOGA's proposed use of imidacloprid to control burrowing shrimp

In the memorandum supporting the tentative denial, Ecology concludes that untreated, or "off-plot" areas of Willapa Bay five times greater than the treated areas are expected to experience toxicity. This conclusion is primarily based on Ecology concluding that a 16.5 ppb "toxic endpoint" is one that results in immediate toxicity to organisms. I hope, sincerely, that Ecology's own toxicologists recognize the flaw in this analysis. As Ecology is well-aware, that 16.5 ppb "endpoint" is derived from a toxicology study that EPA used to select a 33 ppb "acute toxicity" criterion for imidacloprid exposure in marine invertebrates. EPA halved this value to develop a screening level for its analyses, but Ecology has instead incorrectly used this 16.5 ppb value as the acute toxicity criterion. In addition, EPA's acute toxicity criterion is based on toxicity from imidacloprid following 96 hours of exposure to imidacloprid in water. As detailed in the accompanying technical memorandum, and as Ecology should readily acknowledge given the past data collected, **imidacloprid that migrates off-plot rapidly dissipates because of dilution and breakdown**, so that off-plot areas experience exposures that can be measured in minutes, not 96 hours. And, more fundamentally, **Ecology ignored data contained in recent studies** that showed no mortality to crabs at concentrations at levels as high as 12,500

ppb for twenty minutes, much higher than <u>any</u> measured concentrations in Willapa Bay during field trials. To apply a standard that requires four days of exposure to produce toxicity to an environment where concentrations decrease over a span of minutes to hours is bad science.

C. Ecology's conclusion that the use of imidacloprid to control the burrowing shrimp infestation would result in Sediment Management Standard violations outside of the treated areas <u>is not supported by the best available scientific evidence</u>

As detailed more fully in the accompanying technical memorandum, **Ecology chose to ignore years of scientific information in concluding that the proposed use of imidacloprid would result in violation of Sediment Quality Standards outside of the area of application**. As Ecology is well-aware, the SMS do not contain a maximum acceptable concentration for imidacloprid in marine waters, and no data on off-plot invertebrates has been collected that could be used to assess the SMS's maximum biological effects pathway to regulatory compliance. Instead, Ecology chose to compare the same EPA criteria noted above to off-plot water and sediment samples. I have already discussed that the analysis of the water samples was fatally flawed because that standard does not comply with any reasonable toxicology principles given the difference between this 96-hour standard and the actual off-plot exposures of imidacloprid in water.

Ecology's analysis of potential impacts from off-plot imidacloprid in sediments was even less scientifically appropriate: Ecology went through the tortured analysis of applying surface water (i.e., water column) screening levels to sediment samples that were located in treated areas, and then tried to extrapolate those on-plot results to areas not treated with imidacloprid. Even the undergraduates to whom I taught basic environmental toxicology understood that substances at toxic concentrations differ, often by orders of magnitude, in water and sediment. Ecology's own regulations also contain numerous examples of standards for the same chemical that differ between water and sediment. And, more fundamentally, setting aside the mistake of using a water concentration to assess sediment toxicity, if Ecology's own "toxic endpoint" was applied to the data for off-plot concentrations of sediments that are available from past field trials, that analysis would show no potential for off-plot impacts to sediments through the use of imidacloprid to control burrowing shrimp. Again, this is faulty science that excludes the best available data, and that contains basic scientific errors that Ecology either missed or, even more shocking, ignored because those data would undermine Ecology's sought-after conclusion despite the findings of objective scientific analysis.

D. Ecology ignores, for the first time, the ecological benefit of control of burrowing shrimp

As detailed more fully in the accompanying technical memorandum, Ecology has conducted considerable analysis of the ecological impacts of expanding burrowing shrimp populations, and of the high biodiversity and productivity of oyster beds. Although that analysis is now largely

ignored by Ecology, the science on this issue remains very clear: burrowing shrimp have severe ecological impacts on eelgrass, oysters, the structural complexity of intertidal habitats, and through these effects, ultimately produce negative ecological impacts to birds, salmon, and trout. If Ecology denies WGHOGA's permit, more than 1,000 acres of oyster beds will be destroyed and replaced by burrowing shrimp dominated mudflats. This will result in the loss of many billions of invertebrate animals and hundreds of thousands of pounds of invertebrate prey items that currently exist in Willapa Bay and Grays Harbor to feed predators like shorebirds and Dungeness crab and salmon. We are disappointed that scientists on the Ecology team failed to disclose or discuss these severe ecological impacts in documents they produced to support the proposed permit denial.

E. Procedurally, Ecology appears to have pre-determined its outcome, putting its thumb on the scales of science in the name of denying this permit application

We are now almost two and a half years into a permitting process that should have taken months. When I was first retained by WGHOGA, I was told by the Attorney General's Office that a permit application would take six months to process and get to a permitting decision. When WGHOGA first applied for the new permit in January 2016, Ecology responded by issuing requests for information on the Sediment Impact Zone application that went on for more than a year—with some of the requests being held back, and others delivered in response to WGHOGA responses to earlier requests for information. Other examples of delay by Ecology are obvious:

1) Ecology chose to compose a SEIS for this permit application, despite the lack of any clear legal requirement to do so;
2) Ecology then chose to fund and prepare the SEIS, despite WGHOGA offers to do so;
3) From Ecology's decision to prepare an SEIS until the actual contract was issued by the Department to a contractor took almost a year;
4) Ecology chose to conduct consecutive rather than concurrent public comment periods, and chose the longest of possible options for those comment periods;
5) In January 2018, Ecology promised a permitting decision by the end of the month, it did not come until months later;
6) Records produced by Ecology indicate that it had made the decision to deny the application in February, and then took more than a month to issue that decision.

Examples of the inherent bias of this process are also abundant. For instance, despite project proponents regularly being involved in the drafting of environmental review documentation, as noted above, Ecology declined any involvement by WGHOGA in drafting the SEIS. This was at a time that Ecology officials were also engaged in discussions with opponents of WGHOGA's proposal, even going so far as to take the egregious step of telling those opponents what type of records they should request from Ecology to prepare comments critical of WGHOGA's proposal. Then, Ecology essentially re-wrote the draft SEIS over a period of weeks, and not in response to comments received. But, as shown by comparison of documents produced by Ecology, such that

Ecology effectively undid what were carefully evaluated and discussed issues during the drafting of the SEIS by the contractor and Ecology team, following procedures agreed upon by all members of that team ahead of the drafting of the SEIS.

Even more remarkably, this was all done without the support of the contractor that drafted the SEIS, who choose to not participate in finalizing the SEIS because Ecology's requested edits were so objectionable as to touch "on our individual credibility as scientists and professionals." Such shockingly biased actions continued when I asked you for a meeting before finalizing the draft SEIS, with that request going unanswered, and in WGHOGA's broad and repeated attempts to craft a compromise throughout the past few months that would address Ecology's concerns and still allow for WGHOGA members to work on saving their farms.

In closing, despite requiring WGHOGA to go through extraordinarily complex, expensive, and time-consuming steps in applying for this permit, Ecology seemed determined from the onset to deny WGHOGA's application. That predetermined outcome is further evidenced by Ecology preemptively addressing in its cover letter transmitting the tentative denial WGHOGA's standing request to modify its permit application and obtain a permit that allows for limited treatment this summer to allow a program of scientific monitoring overseen by a panel of qualified scientists, to address the concerns and uncertainties raised by Ecology in the FSEIS. Similarly, Ecology vetoed, without even meeting to discuss, WGHOGA's offer that it recieve a conditional permit that addresses apparent ongoing concerns by Ecology about treating high organic carbon sediments.

The processing of this permit application by Ecology surely represents a low point in the history of the agency. Ecology has a fundamental duty to adhere to sound scientific process in its efforts to both protect the environment in Washington and ensure that businesses that do business within that environment do so in a sustainable manner, consistent with applicable laws and regulations. Although Ecology may be satisfied that its departure from sound science has resulted in an outcome that is consistent with its own ideology, the precedent set by the handling of this permit application is one that should be alarming for all businesses whose operations involve Ecology's regulatory oversight. And, in so blatantly departing from sound science, Ecology has seriously undermined its credibility—especially with regards to the difficult scientific and social issues that it wants to address. The rural communities, farmers, and agricultural sector in Washington—the heart of Washington's economy—deserve better from Ecology. At this point, the die seems to have been cast, and all parties must resign themselves to long and expensive cycles of litigation on this issue. However, if that is indeed the path that is taken, it is one that still does not address the critical issue of the economic and ecological destruction caused by the burrowing shrimp infestation.

Two years ago, I stood in the audience as Director Maia Bellon addressed a gathering of environmental lawyers, where she discussed extending a hand across a table and working collaboratively with dairy farmers in Eastern Washington. I sincerely hope that, moving forward, Ecology can again find that spirit of collaboration and immediately implement it in the

form of an open, productive, collaboration with Departments of Agriculture and Natural Resources as these agencies and independent individuals become involved in trying to solve this difficult problem that continues unabated. As we remain mired in administrative process, it is important to keep in mind that the burrowing shrimp infestation continues, devastating not only WGHOGA members' farms, but publicly-owned tidelands, degrading the ecological quality of what has been an extraordinary resource and place in Southwest Washington.

Very truly yours,

Douglas J. Steding, Ph. D.