

**Douglas J. Steding, Ph.D**  
doug.steding@millernash.com  
206.777.7552 direct line

September 2, 2016

VIA U.S. MAIL AND EMAIL  
[rich.doenges@ecy.wa.gov](mailto:rich.doenges@ecy.wa.gov)

Mr. Rich Doenges  
Section Manager, Water Quality Program  
Southwest Regional Office  
Washington State Department of Ecology  
PO Box 47775  
Olympia, WA 98504-7775

Subject: WGHOGA NPDES Permit Application

Dear Mr. Doenges:

Enclosed please find materials responsive to your correspondence of April 15, 2016 transmitting information requests related to the Willapa Grays Harbor Oyster Grower's Association (WGHOGA) application for a permit to control burrowing shrimp on oyster beds in Willapa Bay and Grays Harbor. WGHOGA has taken time to attempt to thoughtfully respond to the questions in your correspondence and to other issues raised in follow-up conversations with the Department of Ecology. WGHOGA appreciates that several months have elapsed between Ecology's request and this response. Although some delays were related to staff changes and work schedules within WGHOGA, it is also true that some of the Department's information requests required considerable effort to compile and to review for accuracy.

Given the goal of preparing a complete, and where appropriate, science-based response, WGHOGA engaged Hart Crowser to prepare the enclosed technical memorandum. WGHOGA also requested that Dr. Kim Patten provide white paper summaries in order to help respond to two areas of concern raised by Ecology: 1) the efficacy of imidacloprid (included in April 15 letter), and 2) the efficacy of non-chemical controls (raised in our conversations).

With respect to the first issue, Ecology's expressed concerns that years of research on the use of imidacloprid to control burrowing shrimp showed variable and

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inconsistent efficacy, potentially undermining WGHOGA's conclusion that imidacloprid is the only viable means of controlling burrowing shrimp in Willapa Bay and Grays Harbor tidelands, and therefore the only way to save its members' farms. Dr. Patten's memo reviews over 10 years of research, and provides substantial evidence that imidacloprid provides economically relevant levels of burrowing shrimp control. His memo also recommends approaches to imidacloprid application for areas where efficacy has been lower or inconsistent (e.g., dense eelgrass beds). For non-chemical controls, Ecology has asked whether these can be used in lieu of imidacloprid, or as adjuncts to imidacloprid as part of an integrated pest management approach to burrowing shrimp control. Dr. Patten's second memo again reviews available research, and ultimately concludes that no non-chemical control is viable as a replacement for imidacloprid in controlling shrimp. However, his work does suggest that non-chemical approaches could be effective in particular locations or conditions, and therefore could be part of an IPM approach. While the preparation of these studies by Dr. Patten did take some time, WGHOGA is confident that they will aid Ecology in the preparation of the SEIS associated with the permit application, and in the Department's issuance of a new permit before next year's treatment season begins.

At various times, Ecology and others have asked about the economic consequences of not being able to control burrowing shrimp as a result of not re-obtaining the permit that was cancelled in 2015. WGHOGA surveyed the members seeking permit coverage under the current application, and asked them to project bed losses over the next five years. The results of that survey indicate that cumulative losses will result in almost 500 acres of seed or nursery ground, 575 acres of fattening beds and more than 530 acres of clam beds lost by the end of year five. The resulting economic loss to WGHOGA members is estimated at an annual production value of \$9600 per acre for oyster beds, and \$13,000 per acre for clam beds. Cumulative losses by year five would total just under \$50 million. This loss is production loss only, and does not include indirect economic impacts to the communities that surround Willapa Bay and Grays Harbor or the economic value of the lost habitat associated with the conversion of rich oyster or clam beds into benthic wastelands. The direct economic loss number also excludes the losses already experienced by the growers due to not being able to control burrowing shrimp over the past two years and does not take into account the real possibility of these growers having to close multi-generational farms due to shrimp infestation.

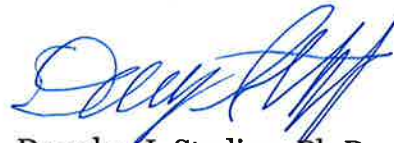
WGHOGA can provide more detail regarding this economic loss estimate as Ecology moves forward with the preparation of the SEIS associated with the permit application. WGHOGA would note that this economic loss is an important factor to

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consider in evaluating a baseline or "no action" alternative in that SEIS. Similarly, given scientific literature showing that burrowing shrimp can reduce or eliminate other species that are important to ecosystem function (e.g., eelgrass), the SEIS will need to project ecological losses to Willapa Bay and Grays Harbor under the "no action" alternative.

WGHOGA, perhaps more than any other party, appreciates the complex technical and political environment surrounding this permit application. WGHOGA greatly appreciates Ecology's efforts to re-evaluate its application, and sincerely believes that the science continues to support issuance of the NPDES and SIZ permits necessary to use imidacloprid to control burrowing shrimp. With those beliefs in mind, WGHOGA looks forward to working with Ecology in a collaborative manner to get back to the point where its members can control the burrowing shrimp infestation that threatens the shellfish farms of Willapa Bay and Grays Harbor.

Very truly yours,



Douglas J. Steding, Ph.D.

DJS:fd

Enclosures