Brian and Marilyn Sheldon

(Email Submission)

Please find attached our comments regarding the Draft SEIS for the use of Imidacloprid on burrowing shrimp in Willapa Bay and Grays Harbor.

We appreciate the opportunity to comment.

November 1, 2017

Derek Rockett
Water Quality Program
Washington State Department of Ecology
SW Regional Office
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Email: burrowingshrimp@ecy.wa.gov

Dear Mr. Rockett,

We appreciate the opportunity to provide comment on the draft Supplemental Environmental Impact Statement (SEIS) for the use of imidacloprid to control burrowing shrimp in Willapa Bay and Grays Harbor. These written comments are in addition to the verbal input we provided on this subject at the October 7, 2017. Having reviewed the SEIS, prior EIS, and many other documents, we find that these documents support the issuance of an NPDES permit to allow the control of burrowing shrimp on shellfish beds in Willapa Bay and Grays Harbor.

Over the past many years, we've been monitoring the impacts of shrimp on our most prime shellfish farm lands. At the end of summer 2017 we had lost a total of 110 acres (30%) of our most productive oyster farm lands, and 103 acres (43%) of our clam farm lands due to shrimp infesting our farmlands. These lands are critical to our ability to operate and meet the needs of the markets we serve. As we've lost this critical habitat, we've been forced to reduce our staffing commensurate with the percentage of our acreage losses. We are seeing not only larger adult shrimp move laterally into our beds, but more alarmingly we are seeing shrimp larva settling out across our beds. These juvenile shrimp take 2 to 3 years to become large enough to do significant damage, and we've seeing them infest our beds annually for the past 3 years. The bed substrate is becoming alarmingly soft across entire sections of our farm, and it's clear that we have a very short time before we will begin losing land at an even faster rate. It's important to note that our beds support a vast amount of other species, and the habitat they depend on is being lost as well.

We believe it's important to note that burrowing shrimp have expanded out of their historic population centers and have caused great damage to many areas of Willapa Bay that once supported a much more diverse and plentiful habitat. Based on available history, it's clear that shrimp have only more recently expanded out of their native areas and destroyed thousands of acres of Willapa habitat. By the time the first export of oysters from Willapa Bay occurred in 1849, some form of cultivation had already been occurring on tidelands in many areas of Willapa. Native oysters were collected and transplanted to grow out or holding areas. An 1894 map produced by the United States Fisheries Department (see attached) shows where natural (native) and cultivated beds were at that time, as well as where introduced oysters were

planted. If shrimp had been present, these areas would not have sustained even short-term storage of oysters. In comparing this map to current conditions it's easy to see that shrimp have expanded significantly into areas used for many years to farm oysters. Between 1849 and 1895 (46 years), oysters were gathered from native oyster beds and moved to these storage locations so they would grow larger and also be more accessible for loading onto boats for export. In 1895 legislation was passed with the goal of fostering shellfish farming where interested parties could apply to purchase marine lands they believed would sustain shellfish beds. These lands had become known over the many years prior to the passage of said legislation as areas that could be depended on to hold oyster crops. From 1895 until approximately 1935 interested parties could apply to purchase these tidelands from the State. If these lands had not been successfully able to sustain oyster crops for any reason, including shrimp infestation, then they would not have been purchased. Because they had been using these lands for 86 years at that point in time, it was well understood where stable lands were that could be depended on to produce an oyster crop. It was not until approximately 1947 when shellfish farmers began to notice their crops were disappearing. Prior to that, these lands had been under cultivation for almost 100 years with no history of shrimp infestation causing crop loss. This overview of shrimp population expansion is important to understand because while these shrimp are a native species, something has occurred to allow them to expand vastly out of their historic population areas. The SEIS should acknowledge this expansion history. Like many agricultural pests that are also native species, these shrimp species have also expanded out of their natural habitat areas and are acting to destroy long existing historic shellfish farm lands. Like any farming sector, no matter if its marine or terrestrial, shellfish farmers must have pest management tools to control pests no matter if they are native or invasive pests.

The question of why shrimp have expanded their habitat range is touched on in the SEIS. Unfortunately, the reasoning provided is not aligned in any way with history or the real-world facts. There are inferences that native oyster harvesting, shellfish grower actions, etc. have somehow contributed to the imbalance of shrimp in Willapa Bay and Grays Harbor. I have been involved in shellfish farming for the better part of my life (over 50 years), and these claims are frankly nonsense and without merit. While there are multiple hypothesis about why shrimp have acted to expand their habitat, one seems more likely to be a basic cause. In its natural state the Columbia River plume would seasonally fill the Willapa and Grays Harbor with fresh water thereby lowering the salinity in the bay to levels that acted to naturally control new juvenile shrimp recruits. These recruits flush into the estuary and settle out into the upper sediments of the tidelands. When salinity levels would reduce due to the annual freshets, juvenile shrimp would be naturally controlled. With the heavy damming of the river, these freshets have been about eliminated. While there are other natural contributors to controlling shrimp populations, it seems likely that the general salinity reduction that occurred all over the bay had the largest impact in regard to naturally controlling shrimp. We appreciate that the SEIS touched on reasons why shrimp populations have expanded in Willapa Bay, but the reasons listed are so unlikely that they are never referenced in any of the many groups we have

worked with on this matter. In fact, we have never heard anyone mention most of the causes noted in the SEIS. If the SEIS is going to include reference to possible causes of the imbalance in shrimp populations, it should include only those that have a realistic possibility to affect shrimp population dynamics. The one thing we believe all will agree on is that whatever has caused this problem, it's based on human interference in the system of one form or another.

We request that the SEIS add additional information in regard to the negative consequences of the no action alternative #1. The amount of information on the negative impacts shrimp infestation have on native Eel grass, crabs, fish, diatom production, shellfish beds, etc. is well documented, and yet we see almost no mention of these negative impacts that will result if the no action alternative is selected. This is a disservice to the reader of the SEIS as it implies that the impact of no action is neutral. The SEIS must include a balanced review of these impacts.

We are concerned that the discussion around the impacts to crab leaves the reader to believe that there is an overall negative impact to crab populations. This is in direct conflict with what actual field research has demonstrated, with historic crab harvest information, and with a vast amount of institutional knowledge. The fact is that by protecting shellfish beds crabs are provided a refuge where they can live and grow into adulthood. On the other hand, if shrimp infest an area, the habitat for crab, Eel grass, etc. is essentially eliminated. The species density and abundance plummets as shrimp infest. This fact needs to be clarified in the SEIS so the reader has a clearer understanding of the actual impact and can appreciate that controlling shrimp is a benefit to many other species, including commercial species such as Dungeness crab.

In regard to mechanical control, over the past 20 years we have tried many mechanical methods to control burrowing shrimp. While we will continue to participate in an Integrated Pest Management (IPM) program, at this time we have not found any mechanical methods that provide an adequate level of control. Our findings are that even if a method disturbs the shrimp, they simply return to the bed and burrow into the sediments.

There is an inference in the SEIS that off bottom culture methods can be implemented to try to "farm around" shrimp infestations. We've met with many growers who have and are trying to develop alternative culture methods that allow shrimp infested areas to be farmed, and to date not one farm has said that off bottom techniques can be used as a solution. In fact, almost all successful off bottom projects have been treated for shrimp in order to be sustainable. At the current time we are seeing most if not all of these off-bottom projects being heavily damaged by shrimp infestations. While there are experimental trials looking at new methods as part of our IPM program, at this time there simply is no off bottom or any other culture methods that can be sustained without effective shrimp population management.

Another point of confusion contained in the SEIS is in regard to why off bottom culture techniques have been developed. There are two long-term primary reasons for implementing off bottom culture techniques. The first is to utilize ground that is considered marginal as far as

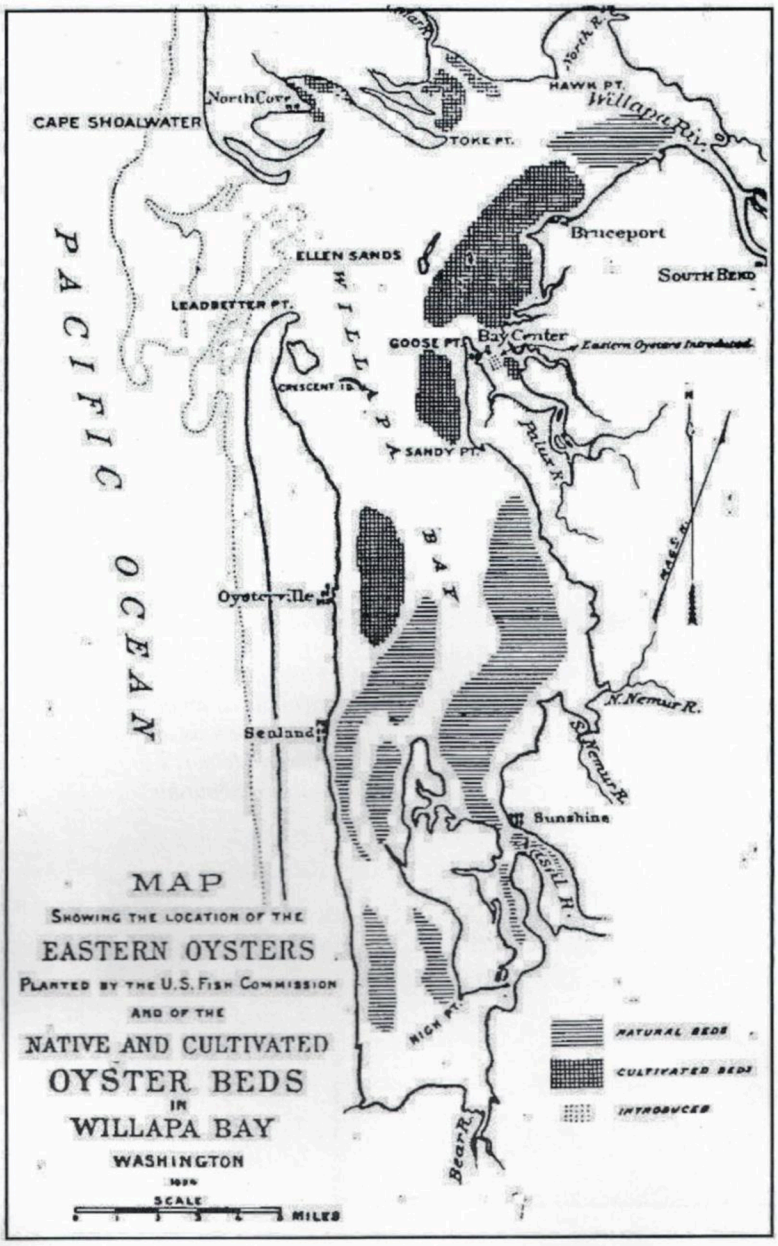
growing conditions so that a suitable oyster for a particular market can be produced. Another reason to implement off bottom culture is to allow ground that may have high currents or expose to sever weather to hold an oyster crop. Bottom culture for this type ground isn't possible because high currents of weather exposure make the risk of losing the crop too high. It's important to clarify that off bottom culture methods were not developed to try to farm around shrimp infestations, and at this time all off bottom techniques require shrimp control to be sustained. Of course, where shrimp don't naturally occur there may be opportunity to farm off bottom.

Again, we appreciate the opportunity to provide comments on this critical pest management issue. Our farm is being heavily impacted by these invading shrimp, and after 4 generations of farming we face the real possibility of losing our farm if we cannot get an effective management tool in place. For over 60 years shellfish growers have been working on IPM tools to address this and other pest issues, and this process will continue. I am aware of the controversy around using pesticides in general, but we must allow the science to prevail. In this case, the science clearly tells us that controlling burrowing shrimp is not only a benefit in regard to protecting our farm lands, but to the general health of the estuary.

Sincerely,

Brian & Marilyn Sheldon

1894 U.S. Fish Commission map of Willapa Bay (Pacific County Historical Museum)



1894 U. S. Fish Commission map of Willapa Bay. The natural native oyster beds at the south end of the bay (first by informal agreement, then by law), were set aside as reserves to help restock the cultivated beds. (PCHS image.)