

Ross Barkhurst

(Email Submission)

I am writing to let you know that the subject SEIS cannot support the drafting of a permit as has been supposed by DOE (Ecology). I also ask that you consider the lack of public information on comments to date from WDFW on how fish and wildlife would be put at risk, and impacts cumulative to date from events including

other spray campaigns. These include the ongoing campaign which authorizes removal of all eelgrass from shellfish beds containing any *Zostera japonica* in Willapa Bay.

I am a graduate of the US Naval Academy with a major in Naval Science and a second major in Oceanography. Following graduation I spent six years as an officer in the US Naval nuclear submarine service. Following my service I worked for thirty years at increasing levels of responsibility in the nuclear electric utility business. I served at all levels starting as a System Engineer, culminating as President and CEO of a Nuclear Generating Company. I worked at three large power plants, all on rivers, two in tidal zones, one including the Columbia River. We have owned land on Willapa Bay for forty years. I retired in 2002 and have lived full time on Willapa Bay in Pacific County since then. I personally sprayed *Spartina* sp on my oyster bed under an NPDES permit held by WA Dept of Agriculture from 2004 through 2008. I have closely followed generation of NPDES permits to spray eelgrass and burrowing shrimp in Willapa Bay and Grays Harbor. I have given lectures on my view of all three of these permits. While working previously at three different Nuclear Steam Electric Generating Stations, I was responsible for many and ultimately all aspects of NPDES and Environmental Monitoring Program compliance and in two cases for obtaining approval for these permits. I have given talks to various government bodies concerning the attributes of these permits. I have signed requests for changes to these permits. I have served on an industry advisory committee to the US Secretary of Energy.

I would refer you to details of my twenty plus detailed comments recently submitted to Ecology. Those who did not get them will see them shortly. My purpose here is to communicate the big picture at your level of the State of Willapa Bay and its deteriorated Net Ecological Function. WDFW Commission and director have received a number of more detailed reports over the past few years.

The SEIS is a step backwards from the former FEIS it purports to supplement when it comes to dilution and flushing of pollutants such as imidacloprid. It claims that large tidal exchange, and tidal flushing, rapidly remove pollutants from the estuary. These do not do this. I have previously described the attributes of a vertical or horizontal boundary estuary and how a fairly closed loop of circulation is set up. In your workshop (Ecology) on the original EIS for imidacloprid you referenced a paper and posted a map from a Banas and Hickey study of Willapa Bay circulation. This showed the exact characteristics of a vertical boundary estuary. It showed counter clockwise closed loop rotation North of a Dispersion Gap, and a more stagnant zone south of this gap where water average age varies from 45 days in mid bay to over 60 days South of Long Island in the USFWS Refuge. This Refuge was originally created for waterfowl.

North of the dispersion gap, which runs roughly from below Nahcotta on the peninsula on the West to Sandy Point on the East, the average age of water during the SEIS spray window is 7 days. This means in three half lives, or 21 days, 12.5% of suspended pollutants will remain. In mid bay, after three half lives, 135 days, 12.5% will remain. Of course after 45 days 50% would still be there. It generally takes five half lives to remove a substance " almost completely" to 3.13%. The SEIS statements about big tide ranges and tidal flushing removing pollutants are wrong, and shocking

after having reviewed this before with the same team of Bartlett, Toteff, Doenges, and Rockett. One can imagine the odds of an organic carbon (TOC) loving pesticide like imidacloprid ever leaving South Bay. Just three half lives are 180 days. Five are 300 days. Seems clear all will find a home in some dead or alive TOC before ever being flushed from below the Dispersion Gap. We have run this road before, I understand the proponents for trying again, but cannot accept Ecology role in this. It is time to face reality. EIS' are required to support permits, yet in workshops we were told if there were a permit it would be designed to take care of such problems as may surface, including "uncertainties" which are listed for the SEIS. This is not how it has to work. A permit must rest on top of and implement the assumptions of a solid EIS. You do not have one.

Historically Ecology and WDFW have started out with inadequate baselines and done inadequate monitoring. Where a waterfowl baseline did exist prior to eelgrass spraying, and waterfowl numbers fell through the bottom, the only action has been to quit counting waterfowl. No cause has been communicated for this unprecedented decline, and no corrective action. An inadequate eelgrass baseline from 2006, after spartina spraying had already been underway, has been followed by eleven years of no baywide eelgrass mapping. After eleven years of no herring spawning mass surveys while spawning beds are now subject to spray permits, I have a verbal report spawning mass has been surveyed at zero in 2017. No written report has been forthcoming.

A review of my State of the Bay reports will show Chinook escapement, waterfowl, herring spawning mass, ESA listed green sturgeon, and white sturgeon all still declining and in trouble. My review of WDFW and Ecology actions finds no change to habitat loss, or recovery plan other than that in the Willapa Salmon Management Policy, which is not being honored in spirit or with actions the public can see. Chum salmon have not recovered as required to allow commercial harvest, and with eelgrass they constitute a large part of the base of our food pyramid here.

In short, although we " manage to three H's", habitat, harvest, and hatcheries, in practice we do not, not without recovery plans that include habitat and cumulative effects analysis to match before removing more. It can no longer be acceptable to ignore past losses while proposing more. A WDFW that " cannot afford" to survey waterfowl any more cannot support further eelgrass removal, or new losses of invertebrates, unquantified under false draft Ecology claims that pesticide flushes smartly out to sea.

In the past Ecology has taken lack of formal comment or concern by WDFW to mean that all is well with the next NPDES permit. It has used this lack of comment by WDFW to override public comment. This is not valid, any more than the claim that WDFW cannot afford to monitor. If we cannot monitor conditions under a permit, we cannot have a permit.

Claims and lectures provided by our Ag Extension office saying no problem with imazamox buffer zones or imidacloprid in estuaries are not acceptable if that office has been selling shellfish to the WGHOGA rep it is inputting on an EIS. Neither are these claims acceptable when not backed up by independent opinions from WDFW, who owns the wildlife responsibility. When WDFW contractors are removed from the evaluation and replaced by the conflict of interest office in Agriculture you cannot continue the last permit. When we cannot find any substantial review of imidacloprid EIS by WDFW, you cannot continue towards another. Should WDFW comment publicly now before November 1, we would not have the benefit of such words or the ability to review them for our comments.

WDFW has the lead in protecting and managing fish and wildlife. It has the obligation to track the health and welfare of same. As stated in its Forage Fish Management Policy, it is especially important to survey spawning mass where human activity may cause impacts. Implicit in this is a recovery plan when losses are found, not no comment when more may be anticipated with yet another chemical. Young herring eat either plant life susceptible to herbicide or invertebrates

susceptible to pesticide, or both. These chemicals in the vicinity of known herring habitat have no place if we lack ability to monitor annually and no recovery plan. Same for waterfowl and two of our salmon species. At least one of our now empty herring spawning beds lies below the dispersion gap.

Summary

Silence on impacts on Fish and Wildlife, concurrent with failure for whatever cause to monitor, plan, and recover such wildlife, can no longer be seen by Ecology as acceptability of yet another EIS for yet another NPDES permit. No burrowing shrimp pesticide permit can be drafted for key reasons:

1. Inadequate SEIS which ignores best available science such as bay circulation patterns and sediment/plant capture of systemic poisons designed to kill invertebrates.
2. WDFW lack of meaningful input, and public statements that it cannot monitor or in season manage impacts on key species already in trouble. These include waterfowl, salmon, and forage fish.
3. There is a total lack of cumulative impacts analysis, and no apparent acceptance that all causes count in such a score card, not just the next impact, in this case with uncertainties abounding.

Requests and Recommendations

1. I am asking that Ecology declare the uncertain SEIS to be inadequate to support drafting an NPDES permit for imidacloprid for burrowing shrimp removal in Willapa Bay and Grays Harbor.
2. I am asking that application of imazamox to kill eelgrass in Willapa Bay be suspended. The Buffer Validation Test is unreliable with respect to how much chemical was actually applied, and suspect when the plan was abandoned to have final review of damage done by an independent WDFW contractor. The latter was removed and replaced with the same Extension Agent who applied the chemical and was at the time in violation of State Ethics codes. Damage was done in drainages outside the protective buffer and evaluated as acceptable by the same conflicted person who supervised the application improperly.
3. A public task force should be set up to advise WDFW on a plan to recover the State of Willapa Bay and review the State of Grays Harbor. Recommendations of this task force would be incorporated in any future plans to remove or restore habitat in Willapa Bay.
4. It is recommended that WDFW immediately restore plans, this year, to survey waterfowl stopping over in Willapa Bay especially during historical peak periods. The cause of historic declines locally must be determined and corrected. This for example would include November peaks for ducks and geese and spring staging periods for Pacific Brant. Further, WDFW should commit to monitoring herring spawning mass annually in Willapa Bay going forward, and generating a recovery plan for these forage fish. The Willapa Salmon Management Policy should be supplemented with a more robust recovery plan for these fish under current PDO conditions, and expanded to include recovery of both species of sturgeon historically present in large numbers.

Respectfully,

Ross P. Barkhurst, South Bend, Washington