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At Risk: American Jobs, Agriculture, Health and Species – the Costs of Federal Regulatory Dysfunction

SUPPLEMENTAL TESTIMONY
OF
ANGELA BEEHLER

DISTRICT MANAGER
BENTON COUNTY MOSQUITO CONTROL DISTRICT #1
4951 WEST VAN GIESEN STREET
WEST RICHLAND, WASHINGTON 99353

VICE PRESIDENT
NORTHWEST MOSQUITO AND VECTOR CONTROL ASSOCIATION

CO-CHAIR, ENDANGERED SPECIES ACT SUBCOMMITTEE
AMERCIAN MOSQUITO CONTROL ASSOCIATION

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The Effect of Regulatory Dysfunction on Public Health

The future of public health mosquito control is in jeopardy due to increasing costs needed to register our pesticides, burdensome requirements of Clean Water Act permits if enacted, and some ill-advised Endangered Species Act (ESA) protections. These costs divert scarce resources away from our primary mission of protecting public health and compromise both the quality and extent of protection we offer the public.

The ESA is intended to protect species that are threatened with extinction and maintain their critical habitat. The current manner in which the ESA is being implemented can impede mosquito control programs in achieving their goals, namely protecting the public's health and welfare from nuisance causing and disease carrying mosquitoes. In addition, endangered species such as Whooping Cranes and Sandhill Cranes are affected by mosquito-borne disease. Any compromise to mosquito control activities is bound to affect them as well.

EPA provides its analysis on potential environmental effects from a pesticide, including those on endangered or threatened species, to the Fish and Wildlife Service and National Marine Fisheries Service (NMFS) which are charged with administering the ESA. The Services develop and issue Biological Opinions (BiOps) reflecting their conclusions of potential impacts in addition to providing recommendations for mitigation.

The provisions of the Endangered Species Act do not mandate that NMFS assess the human health benefits when evaluating effects of pesticides on salmon and steelhead. The third BiOp rendered by NMFS ultimately determined that naled, a mosquito control adulticide, could jeopardize salmonids and recommended label changes be made. However, it was evident that proper care had not been taken to obtain actual usage information from the public health pesticide applicators. As a result, the BiOp grossly overestimated the amount of naled used by mosquito control in the Northwest, while underestimating the public health importance of this product. The assumptions made during the consultation could eliminate adult mosquito control over much of Washington, Oregon, and California.

This analysis forms the basis of Service-recommended Reasonable Prudent Alternatives and Reasonable Prudent Measures sent to the EPA for implementation. Even though the basis for the proposed mitigation measures may not be well founded, EPA is nonetheless left with implementing them. This can include significant label restrictions that preclude use of pesticide products to protect public health and welfare.

Resource shortfalls in staffing and funds make it extremely difficult for the Services to render timely BiOps. Even when BiOps are completed and opened for public comment, stakeholders are not provided adequate time to review the documents and provide meaningful feedback.

The determination of the potential impacts of public health pesticides on endangered and threatened species should be heavily dependent on the expert review performed by the EPA Office of Pesticide Programs as part of the registration review processes. The analysis and conclusions of the EPA in this regard should be strongly considered by the Services in the development of the BiOps. That analysis and conclusions should only be set aside where the

Services have validated information which demonstrates that the EPA's analysis is faulty.

The Endangered Species Act must be modified to make considerations for public health uses. I do not believe it is the intent of the EPA or the Services to put people at risk, but that is the consequence of the statute in its present form. The case involving NW salmon sets a precedent for hundreds of pesticide active ingredients and endangered species and should proceed with the utmost caution. Furthermore, the consultation process must be clearly defined to reduce inconsistencies in the Biological Opinions. Ample time for public comment, peer-reviewed scientific input, and stakeholder participation is essential if the Endangered Species Act is to fully provide the benefits for which it was intended.

NMFS Overestimated Salmon Exposure to Mosquito Control Pesticides in Models

The EPA registration process fully addresses water quality impacts of adult mosquito control products. Ultra Low Volume (ULV) applications to control public health vectors at sites under conditions specifically prescribed by the Federal Insecticide Fungicide and Rodenticide Act (FIFRA) label should not be subject to further requirements under ESA. The droplet size, application timing and meteorological parameters for ULV operations are specified on the insecticide label per FIFRA. The minute size of the droplets minimizes deposition on non-targets, while facilitating both impingement on mosquitoes in flight and rapid breakdown to inert substances. Per label specification, ULV operations are subject to clearly defined meteorological parameters, i.e. wind speed (<10 MPH), high relative humidity, and temperature inversion. These help maintain the insecticide in the air column through the target area, while minimizing drift and deposition in non-target areas (Tucker et al. 1987, Tietz et al. 1994, Tietz et al. 1996).

In the third BiOp, *The Endangered Species Act section 7 consultation: biological opinion on Environmental Protection Agency registration of pesticides containing Azinphos methyl, Bensulide, Dimethoate, Disulfoton, Ethoprop, Fenamiphos, Naled, Methamidophos, Methidathion, Methyl parathion, Phorate and Phosmet,* NMFS states that "although labels specify not to apply naled directly to surface water, they do allow for drift applications to be made over a variety of salmonid habitats such as streams, rivers, lakes and tidal marshes." This statement is not accurate.

The mosquito control label for Dibrom Concentrate (naled) reads, "Do not apply over bodies of water (e.g., lakes, swamps, rivers, permanent streams, natural ponds, commercial fish ponds, marshes or estuaries), except when necessary to target areas where adult mosquitoes are present, and weather conditions will facilitate movement of applied material away from the water in order to minimize incidental deposition into the water body.(EPA Reg. No. 5481-480)."

The BiOp accurately describes mosquito control applications in the statement "These applications typically occur at higher elevations (e.g. 200 feet) and smaller drop spectrums than those common to agricultural applications." However they based their conclusions for salmon survival on concentrations from a model that releases chemical at 50 ft; "The simulations suggest mosquito application may result in aquatic concentrations that exceed 7 µg/L for the lower labeled rate, and 90 µg/L for the maximum labeled rate. NMFS. (2009)."

"We also expect concentrations of naled and phosmet to kill juvenile and adult salmon in floodplain habitats and small streams, based on NMFS modeling. We therefore evaluate the effects to populations from exposure to naled based on reduced survival." NMFS. (2009). An application at 200 ft based on their model would result in a concentration of 3 µg/L, which is well below the toxic dose for salmon and steelhead.

A study was conducted to determine if mosquito adulticides applied along the Florida Keys cause adverse ecological effects in the Florida Keys National Marine Sanctuary (FKNMS). The study monitored the distribution and persistence of two mosquito adulticides, permethrin and dibrom (naled), during three separate routine applications by the Florida Keys Mosquito Control District. The approach was to determine if toxic concentrations of the pesticides entered the FKNMS by aerial drift or tidal transport. Naled was detected in one water column sample on the Atlantic side (0.19 µg/L), but its breakdown product dichlorvos was detected in "50% of the water samples" (range 0.08 -0.56 µg/L). At the 10-11 h post application sampling, dichlorvos was detected at 3 of the 9 sampling sites (range 0.05 - 0.33 µg/L.) Following the second application, naled was not detected in water column samples. Dichlorvos was detected at 2 sites (range 0.7 -0.09 µg/L), but in lower concentrations than following the first application. (Pierce et al 2005).

In a report compiled by the MOTE Marine Laboratory for Collier Mosquito Control District in Naples, Florida assessed the amount of Dibrom (naled) residues in fresh and salt water environments during normal mosquito control adulticiding conditions. This report was not available to NMFS during consultations, but demonstrates the difference between NMFS model calculations and real-world data. The highest concentration of naled detected during that study was .66 µg/L. (NMFS model predicted 7-90 µg/L) MOTE. (2010)

Water quality monitoring was conducted in Washington and California and no detections of naled were found in either study.

We evaluated monitoring data available from the California Department of Pesticide Regulation, which maintains a public database of pesticide monitoring data for surface waters in California. naled was not detected in any of the samples. Dichlorvos was detected in 0.2% of samples with a maximum concentration of 0.542 µg/L. NMFS. (2009).

Data from monitoring studies conducted in the state of Washington are included in Department of Ecology's Environmental Information Management (EIM) database (http://www.ecy.wa.gov/eim/). Naled was not detected in any of the samples. The naled degradate dichlorvos was not detected in these studies either. NMFS. (2009).

NMFS attributes the lack of detections a low number of samples. In actuality, naled breaks down quickly in the environment to undetectable levels - which makes it a desirable product for locations with listed threatened or endangered species. The absence of naled in monitoring data indicates that current label protections are sufficient to protect listed species.

No Field Incidents Reported in EPA Incident Database

NMFS reviewed reported incidents of fish deaths from field observations throughout the U.S. because this information reflects real world scenarios of pesticide applications and corresponding death of freshwater fish. Large numbers of incidents in the database were attributed to azinphos methyl, **while any incidents associated with naled were considered unrelated or an unlikely cause of the event**. NMFS. (2009).

NMFS Assumption of Pesticide Use Rates in the Northwest

NMFS did not obtain actual use data from pesticide applicators or the pesticide registrants. Instead, they relied on the maximum use allowed by the pesticide label. "Use estimates for states in the Pacific Northwest suggest much greater application of naled is possible, although actual use in Idaho, Oregon, and Washington is unknown." NMFS. (2009). "Recent usage data for naled in the Pacific Northwest are not readily available and are therefore unreported. NMFS." (2009).

In the summary of all authorized use sites and application restrictions for active naled products registered in California, Idaho, Oregon, and Washington, NMFS stated that applicators *could* apply 10.73 lbs of naled/acre/year. In 2009, Benton County Mosquito Control District used naled applications to control West Nile virus and the combined applications amounted to .27 lb/acre. Most mosquito control districts in the Northwest do no aerial adulticiding, and the programs that do typically budget for 1-3 applications per year. In order to apply the 10.73 lbs of naled/acre/year as mentioned in the BiOp, mosquito control districts would have to make 104 applications per year.

EPA Evaluates Risks to Endangered Species during Registration

Endangered species Levels of Concern (LOC) for naled are exceeded for birds as follows: acute risks to herbivorous birds from **all uses except for mosquito control**; acute risks to insectivorous birds from the applications on almonds, cole crops and citrus; chronic risks to herbivorous birds from the uses on almonds, cole crops, citrus and seed alfalfa; and chronic risks to insectivorous birds from the use on almonds. Endangered species LOCs for mammals are exceeded as follows: acute risks to herbivorous and insectivorous mammals from **all uses, including mosquito control**. In addition, seed-eating mammals are at risk from the almond use. Chronic risks are also a concern for herbivorous and insectivorous mammals from all uses **except for mosquito control**. The chronic risk exceedance for birds and mammals are based on maximum residues following one application and do not include degradation or dissipation of naled in the environment. In addition, endangered terrestrial invertebrates are expected to be at risk from **all uses** of naled.

There are also risk concerns for endangered aquatic species. Endangered species acute and chronic LOCs are exceeded for freshwater invertebrates from all uses. **Naled's use for mosquito control is only an acute risk to freshwater invertebrates**. The acute LOC for endangered freshwater fish is only exceeded for the uses on cole crops, citrus, and almonds and to control hornflies. The acute LOC for endangered estuarine invertebrates is only exceeded for the use on

cotton; however, there are currently no federally listed endangered/threatened species for this group of animals. EPA. (2004).

EPA Benefit Assessment for Naled

Naled has been described by the CDC (Center for Disease Control) as one of the principal pesticides used for adult mosquito control in the U.S. The Environmental Protection Agency has concluded that the current uses of naled in controlling mosquitoes have a significant health benefit. EPA. (2006). It is effective against almost all species of Aedes, Anopheles, Coquillettidia, Culex, Culiseta, Mansonia, and Psorophora, which comprise the major nuisance and vector mosquito species in the U.S. and elsewhere in the world. **In the U.S., naled is an essential pesticide for suppression of the mosquito born encephalitis viruses.** It is also used in the U.S. and internationally for mosquito control in emergencies following hurricanes and floods, and in refugee camps for control of mosquito vectors of malaria and dengue and nuisance mosquitoes and flies.

West Nile Virus

Over the past two years, West Nile virus infected mosquitoes were found in large numbers in Washington State. Through the use of area-wide mosquito control we were able to prevent the virus from spreading from agricultural areas into residential neighborhoods. Inasmuch as 61% of the state of Washington is critical habitat for salmon and steelhead populations, I've no doubt that spray buffers enforced at the time of these outbreaks would have cost human lives. Moreover, the quality of life for victims suffering long-term symptoms and their caretakers would be severely compromised.

Paradoxically, mosquito control activities have demonstrated considerable promise in protecting populations of endangered species otherwise at risk from mosquito-borne disease. For example, West Nile virus is known to be lethal to certain birds, most notably the yellow-billed magpie found only in the central valley of California. Other endangered avians such as Sandhill Cranes and Whooping Cranes have been killed by outbreaks of other mosquito-borne encephalitides. Effective mosquito control measures may in fact lessen the incidence of these diseases help these threatened species maintain viable populations.

The mosquito control community supports a robust Endangered Species Act that will provide optimal protection to all species, both human and non-human. This requires that provisions of the statute be more solidly based on peer-reviewed science than at present. To this end, we ask that the provisions of the ESA be revised to accurately reflect the observed costs/benefits of lawful mosquito control operations. Only thus can we assure the public that both the critical needs of their families and the environment are being met.

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