

Public Hearing (10/19/10)
Vector Control Permit
Deadline: 11/2/10 by 12 noon



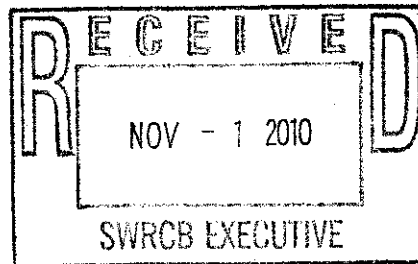
UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

Southwest Region
777 Sonoma Ave., Room 325
Santa Rosa, California 95404-4731

November 1, 2010

In response, refer to:
SWR/F/SWR3:JD

Tom Howard
Executive Director
State Water Resources Control Board
1001 I Street
Sacramento, California 95814



Dear Mr. Howard:

NOAA's National Marine Fisheries Service (NMFS) thanks the State Water Resources Control Board (SWRCB) for the opportunity to comment on the draft statewide general national pollutant discharge elimination system (NPDES) permit for residual pesticide discharges to waters of the United States from vector control applications (vector control permit). NMFS has several concerns with the draft vector control permit as currently written related to our responsibility to conserve anadromous salmonids and other species listed as threatened or endangered under the Endangered Species Act of 1973 (ESA). In particular, two of the insecticides proposed to be covered by the general permit, malathion and naled, as currently registered for use by the U.S. Environmental Protection Agency (EPA), have been determined to jeopardize the continued existence and recovery of all Evolutionarily Significant Units (ESUs) or Distinct Population Segments (DPSs) of anadromous salmonids currently under the ESA in California. Malathion was determined to jeopardize all ten ESUs or DPSs (NMFS 2008) while naled was determined to jeopardize nine of the ten ESUs or DPSs (NMFS 2010). The ESA consultations that came to these conclusions did consider their use as vector control agents in their examinations. NMFS is also concerned with several other aspects of the draft.

The ten ESUs or DPSs of salmonids listed for protection under the ESA in California are:

- Sacramento River winter-run Chinook salmon ESU (*Oncorhynchus tshawytscha*)
endangered (June 28, 2005, 70 FR 37160)
critical habitat (June 16, 1993, 58 FR 33212)
- Central Valley spring-run Chinook salmon ESU (*Oncorhynchus tshawytscha*)
threatened (June 28, 2005, 70 FR 37160)
critical habitat (September 2, 2005, 70 FR 52488)
- California Coastal Chinook salmon ESU (*Oncorhynchus tshawytscha*)
threatened (June 28, 2005, 70 FR 37160)
critical habitat (September 2, 2005, 70 FR 52488)



- Southern California steelhead DPS (*Oncorhynchus mykiss*)
 endangered (January 5, 2006, 71 FR 834)
 critical habitat (September 2, 2005, 70 FR 52630)
- California Central Valley steelhead DPS (*Oncorhynchus mykiss*)
 threatened (January 5, 2006, 70 FR 37160)
 critical habitat (September 2, 2005, 70 FR 52630)
- Northern California Coast steelhead DPS (*Oncorhynchus mykiss*)
 threatened (January 5, 2006, 70 FR 37160)
 critical habitat (September 2, 2005, 70 FR 52630)
- Central California Coast steelhead DPS (*Oncorhynchus mykiss*)
 threatened (January 5, 2006, 70 FR 37160)
 critical habitat (September 2, 2005, 70 FR 52630)
- South-Central California Coast steelhead DPS (*Oncorhynchus mykiss*)
 threatened (January 5, 2006, 70 FR 37160)
 critical habitat (September 2, 2005, 70 FR 52630)
- Southern Oregon/Northern California Coast coho salmon ESU (*Oncorhynchus kisutch*)
 threatened (June 28, 2005, 70 FR 37160)
 critical habitat (May 5, 1999, 64 FR 24049)
- Central California Coast coho salmon ESU (*Oncorhynchus kisutch*)
 endangered (June 28, 2005, 70 FR 37160)
 critical habitat (May 5, 1999, 64 FR 24049)

Two additional anadromous species are also listed for protection under the ESA, but have not been examined in the national pesticide registration consultations for malathion and naled. These species are:

- North American green sturgeon southern DPS (*Acipenser medirostris*)
 threatened (April 7, 2006, 71 FR 17757)
 critical habitat (October 9, 2009, 74 FR 52300)
- Pacific eulachon/smelt (*Thaleichthys pacificus*)
 threatened (March 18, 2010, 75 FR 13012)

Essential Fish Habitat (EFH) has also been designated for all of the Chinook and coho salmon ESUs found in California under the Magnuson-Stevens Fishery Conservation and Management Act (MSA). EFH is defined in the MSA as "Those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." When NMFS finds that a federal or state action would adversely affect EFH, it is required to provide conservation recommendations.

NMFS disagrees with the general statement in the NPDES permit that the pesticide discharges covered therein pose no significant threat to water quality, especially for the organophosphate (OP) and pyrethroid classes of insecticides, for pyrethrin and for the two synergists, piperonyl butoxide (PBO) and N-Octyl bicycloheptene dicarboximide (MGK-264). The two jeopardy biological opinions for malathion (NMFS 2008) and naled (NMFS 2010) show a significant threat to the RARE and COLD designated beneficial uses where anadromous salmonids are present. Clean Water Act (CWA) Section 303(d) listings of impaired waterbodies for OPs, pyrethroids, and general "pesticides" listings show another significant threat. It is important for

the SWRCB to remember that these pesticides are likely to be at least additive to each other in their effects, especially within their own families. Therefore the addition of any OP to a waterbody recognized as impaired by another OP (e.g., diazinon or chlorpyrifos) is adding to the toxicity already present. The addition of a synergist such as PBO or MGK-264 will make the pyrethroids or pyrethrin already present in the water column or sediments more toxic to aquatic life protected under the COLD beneficial use as mentioned in the draft permit.

Furthermore, the premise expressed in the NPDES permit that EPA evaluates data submitted during the registration process to ensure that a product used in accordance with label instructions will cause *no harm or adverse impact to non-target organisms* is incorrect. Under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), EPA evaluates data to determine if a pesticide has "unreasonable adverse effects on the environment". FIFRA defines this phrase as "any unreasonable risk to man or the environment, taking into account the economic, social and environmental costs and benefits of the use of any pesticide." This standard leaves significant room for harm to non-target organisms as has been shown in the ESA consultations (NMFS 2010, 2009, 2008) that have been completed for pesticide registrations and by numerous other studies and monitoring data readily available for review by the SWRCB.

NMFS acknowledges that the draft vector control permit states that the discharges shall not be permitted that result in toxic pollutants being present in the water column, sediments or biota in toxic concentrations; that any pesticide residues or contaminants are not permitted to cause or contribute to detrimental responses to aquatic life; and that aquatic communities and populations are not permitted to be degraded, except for the target species. However, because the fundamental premise behind the permit is that the EPA's registration process, as discussed in the previous paragraph, is fully protective, NMFS is very concerned that the actions authorized by the general permit will result in take of listed species under our jurisdiction.

In order to eliminate the potential for take of listed salmonids that this permit currently presents, NMFS suggests that the OP insecticides be removed from coverage under the general permit in any watershed where ESA listed fish may be present. The third OP, temephos, is used as a larvicide that may be applied in areas containing ESA listed anadromous species as well as green sturgeon and Pacific eulachon. The draft permit itself recognizes on page D-31 that current mosquito larviciding techniques for temephos pose some risk to non-target aquatic species and the aquatic ecosystem. When the at-risk, non-target species may be ESA listed fish species, this risk is unacceptable and impacts could constitute a violation of the ESA. Therefore, this pesticide cannot be covered with a general permit.

The SWRCB should also be aware that there appears to be more data available for temephos than is presented in the draft permit to calculate the receiving water monitoring trigger. The data in the draft permit only considers fish mortality data while data for pink shrimp and the eastern oyster are referenced in the Extension Toxicology Networks Pesticide Information Profiles for temephos (Exttoxnet 1996). Additional data points for these two species as well as some non-target insects are available from a World Health Organization (WHO 2008) report on temephos as well. Given that the draft permit states on page D-22 that relevant information and recommendations from other agencies and scientific literature will be utilized, NMFS recommends that the SWRCB procure these references and utilize them to recalculate the

receiving water monitoring trigger for temephos. If the pink shrimp data is used as a surrogate species to protect shrimp species found in California, then the lowest LC_{50} is $5.3 \mu\text{g/L}$ which would become a trigger concentration of $0.53 \mu\text{g/L}$ using the permit's methodology.

Although our primary recommendation is to not cover the OPs under the general vector control permit, if the SWRCB chooses to ignore this recommendation, there are other actions that can be taken to lower the risk. In the case of malathion, NMFS (2008) recommended buffer zones of 1,000 feet for aerial application and 500 feet for ground application between where the pesticides are applied and salmonids habitats. Restrictions on applying pesticides in windy conditions that could carry pesticides into nearby habitats were also required as was a prohibition on applying pesticides when a storm is predicted that could cause pesticide run off into nearby habitat (NMFS 2008).

EPA (2009) accepted the use of buffers to protect ESA listed salmonids, but proposed a different method of determining the buffer size. Furthermore, EPA (2010) clarified in their response to the registrants regarding EPA's approach for implementing the NMFS (2008) biological opinion, that EPA did not include an exception for the use of malathion for mosquito control from the buffer requirement. Therefore, at a minimum, appropriate buffers should be required for malathion as calculated by the EPA's method (EPA 2009) or as assigned by the biological opinion (NMFS 2008). If these buffers cannot be assigned through the vector control permit process, then malathion clearly should be removed from coverage under the vector control permit. Please note that NMFS has chosen not to respond to EPA's methodology (EPA 2009) at this time due to the court mandated consultation schedule for pesticide registrations and to the fact that the buffer sizes will be similar under many circumstances.

For naled, the biological opinion (NMFS 2010) did not specify a particular buffer width, but rather calculated a maximum concentration limit for salmonids waters ($0.2 \mu\text{g/L}$), which is higher than the monitoring trigger designated in the draft permit. EPA is required to develop and implement NMFS approved risk reduction measures to ensure the maximum concentration is not exceeded. Restrictions on wind speeds and storm timing for applications were also made similar to those for malathion. If the SWRCB chooses to cover naled in the general vector control permit, then the dischargers must determine the amount of active ingredient that can be applied to stay below the maximum concentration limit before applying the product, in addition to monitoring the actual results.

The three OP insecticides proposed for coverage by the draft permit will have additive and possibly synergistic effects with all OP and carbamate pesticides already present in the receiving water due to the common mode of action of these chemicals (*i.e.*, acetylcholinesterase inhibition) (NMFS 2010). NMFS recommends that these chemicals not be covered by the general permit, but undergo individual permitting evaluations, in waters utilized by ESA listed fish species managed by NMFS due to our expectation of negative impacts at the EPA registered application levels. At a minimum, no applications should be permitted that may impact a receiving water body designated as impaired by an OP pesticide.

Pyrethrin and pyrethroids have been shown to have deleterious impacts to fish, their prey species (*i.e.*, aquatic invertebrates) and their habitat quality in various locations and studies around the

State, as detailed in the draft order and summarized in the State's CWA 303(d) list (SWRCB 2010) among other sources. The addition of synergists (PBO and/or MGK-264) increases the toxicity of the pesticides by blocking the enzyme processes in the target and non-target organisms which typically detoxify contaminants. This also increases the toxicity of many compounds found in the receiving water, particularly pyrethroid insecticides which are readily available to the general public for lawn and garden care and are known contaminants throughout the State. NMFS recommends that the use of synergists not be covered in the general permit where waters that support listed salmonids and salmonids EFH may be impacted. At a minimum, the use of synergists should not be permitted where they may affect waters that are CWA 303(d) listed for pesticide or unknown toxicity impacts.

Most of the pyrethroids permitted under the draft vector permit do not have sufficient data available to calculate water quality criteria. This is why the SWRCB is using the monitoring trigger method set at one-tenth of the lowest known LC₅₀ from the Ecotoxicity Database. However, this does not ensure that the trigger level is actually protective from sublethal (*e.g.*, acetylcholinesterase inhibition) or indirect (*e.g.*, prey base) effects. This means that the allowable concentrations may affect listed species. Therefore, NMFS recommends that the SWRCB compel the dischargers to generate, or cause to be generated, sufficient information for the State (through California Department of Fish and Game presumably) to establish water quality criteria for the active ingredients, both alone and in combination with permitted synergists. The SWRCB should then adopt the water quality criteria so that they appear in the Regional Boards' basin plans.

While NMFS strongly supports receiving water toxicity testing requirements as part of the vector control permit, the monitoring scheme for adulticides in the permit only calls for a surface water sample. Requiring only a surface water sample does not align with the literature cited in the draft permit that shows the route of toxicity exposure for pyrethroids and pyrethrin mainly comes from contamination of the sediments in a waterbody where pyrethroids may remain for longer periods of time. The organisms in the sediment are also protected by the COLD beneficial use, and are a critical part of designated critical habitat for ESA listed fish as well as the EFH designations. Significant impacts to the benthic prey base will lead to indirect impacts to ESA listed fish, as detailed in NMFS biological opinions (NMFS 2010, 2008). NMFS recommends that toxicity testing of both the water column and sediments be required as part of the vector control permit. This will give the State confidence that the permitted actions are protective of beneficial uses. Otherwise, the State is putting a system in place that is likely to generate false negative pesticide impact reports.

Additionally, the permit needs to explicitly require that the water monitoring for pyrethroids and pyrethrin take place within a few hours of application in order to catch any potential impacts to water column resources. The literature cited in the draft vector control permit makes it clear that the insecticides are likely to rapidly partition into the sediments (no detections in the water column as soon as ten hours following application) making detection of the chemicals in the water column unlikely even after they may have impacted beneficial uses.

NMFS strongly supports the requirement for dischargers to use best management practices (BMP) including the selection of non-toxic and less toxic alternatives. NMFS recommends that

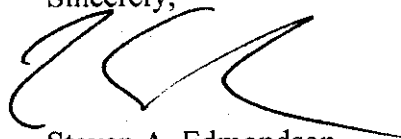
the SWRCB explicitly state that buffer zones are a potential BMP while existing stockpiles of chemicals cannot be considered as an over-riding factor in material selection. NMFS suggests clarifying the term "cost-effective" in much more detail. Otherwise this is an open door for a discharger to claim that it is not cost-effective or feasible to purchase or use the lowest impact chemicals.

NMFS also supports the preparation of a pesticide application plan as a useful tool in preventing unnecessary impacts from vector control. NMFS recommends that the SWRCB require the dischargers to delineate endangered species habitat as well as mitigating factors (e.g., seasonal stream is dry at the time of application) for their project. The dischargers can go to the NMFS Southwest Region website to download the GIS layers for salmonids (<http://swr.nmfs.noaa.gov/salmon/layers/finalgis.htm>) and for green sturgeon (<http://swr.nmfs.noaa.gov/gs/gis.htm>). Calfish.org has much of this information available as well if a discharger is not GIS capable, but these databases may not be complete.

In closing, NMFS wishes to thank the SWRCB for its efforts to protect water quality in the State of California. We acknowledge that this, and other similar, general NPDES permits for pesticide use are being developed on an accelerated timeline in response to legal actions. However, there is sufficient time left in this process to eliminate many of the problems of the draft vector control permit, particularly in regards to protecting ESA listed anadromous fish. The simplest option is to not permit the use of the most problematic chemicals through this general permit, but to require individual permitting if a discharger insists on using one of these chemicals. In that case, the discharger should be able to objectively demonstrate and document a need. In the meantime, actions to protect ESA listed species for the problematic chemicals can be worked out in a cooperative manner.

Please note that this letter does not grant coverage for take under the ESA or alleviate the need for the federal oversight agency (*i.e.*, EPA) to conduct ESA and EFH consultations to seek incidental take coverage. It does serve as notice that NMFS is concerned that the permit may have detrimental effects on Federally listed species or critical habitat that are more than minor, including circumstances where the discharge fails to ensure the protection and propagation of fish, shellfish and wildlife. If you have any questions or comments regarding this letter please contact Joe Dillon of my staff at Joseph.J.Dillon@noaa.gov or 707-575-6093. Thank you for your consideration.

Sincerely,



Steven A. Edmondson
Southwest Regional Habitat Manager
Habitat Conservation Division

cc: Bob Hoffman, NMFS, Long Beach, CA
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