



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ventura Fish and Wildlife Office
2493 Portola Road, Suite B
Ventura, California 93003



IN REPLY REFER TO:
08EVEN00-2018-EC-0001

November 2, 2017

Jeanine Townsend, Clerk to the Board
State Water Resources Control Board
P.O. Box 100
Sacramento, California 95812-2000



Subject: Comment letter – Lower Salinas River Watershed Sediment Toxicity and Pyrethroids in Sediment TMDLs

Dear Ms. Townsend:

We have reviewed the Basin Plan Amendment and Technical Project Report associated with the proposed Total Maximum Daily Loads (TMDLs) for sediment toxicity and pyrethroid pesticides in sediment in the lower Salinas River watershed in Monterey County, California. The lower Salinas River watershed supports habitat for the federally endangered tidewater goby (*Eucyclogobius newberryi*), and federally threatened California red-legged frog (*Rana draytonii*), as well as designated critical habitat for the tidewater goby. The U.S. Fish and Wildlife Service (Service) supports the State Water Resource Control Board's proposed approval of the amendment to the Water Quality Control Plan for the Central Coast Basin to establish these TMDLs.

The mission of the Service is working with others to conserve, protect, and enhance fish, wildlife, plants, and their habitats for the continuing benefit of the American people. To assist in meeting this mandate, the Service provides comments on public notices issued for projects that may have an effect on those resources, especially federally-listed plants and wildlife. The Service's responsibilities also include administering the Endangered Species Act of 1973, as amended (Act). Section 9 of the Act prohibits the taking of any federally listed endangered or threatened wildlife species. "Take" is defined at Section 3(19) of the Act to mean "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." The Act provides for civil and criminal penalties for the unlawful taking of listed wildlife species. Such taking may be authorized by the Service in two ways: through interagency consultation for projects with Federal involvement pursuant to section 7, or through the issuance of an incidental take permit under section 10(a)(1)(B) of the Act.

The tidewater goby is endemic to California and typically inhabits coastal lagoons, estuaries, and marshes. These small fish feed on aquatic invertebrates, including mysids, amphipods, ostracods, snails, aquatic insect larvae, and particularly chironomid larvae. During breeding, male tidewater gobies dig burrows in estuarine sediment and then females aggressively spar with each other for

access to males with burrows for laying their eggs. Male tidewater gobies remain in the burrow to guard the eggs that are attached to sand grains in the burrow ceiling and walls, and may remain in the burrow for approximately 9 to 11 days until the eggs hatch (Swenson 1999). These feeding and breeding characteristics put the gobies in frequent and prolonged contact with sediment, making them particularly vulnerable to hydrophobic contaminants, such as pyrethroid pesticides.

The California red-legged frog uses a variety of habitat types, including various aquatic systems, riparian, and upland habitats. The diet of California red-legged frogs is highly variable. Larvae likely eat algae, while invertebrates are the most common food items of adult frogs. During breeding, female California red-legged frogs deposit egg masses on emergent vegetation, which generally hatch in 6 to 14 days, and larvae undergo metamorphosis 3.5 to 7 months after hatching. The dependence on aquatic habitat for early developmental stages poses an exposure risk to California red-legged frogs from aqueous and sediment-bound pyrethroids.

The Service is concerned that pyrethroid pesticides in the water and sediment of the lower Salinas River watershed may pose a risk to tidewater gobies and California red-legged frog, as well as many other aquatic species. We are particularly concerned about the potential for sediment pyrethroid concentrations to continually increase in estuary sediments, where tidewater goby reproduce. The technical report associated with the proposed TMDLs indicates sediment toxicity to aquatic invertebrates was demonstrated in several waterways of the lower Salinas River watershed. Tidewater gobies and California red-legged frogs feed on aquatic invertebrates, therefore there is a direct connection between the sediment toxicity and an adverse effect to tidewater gobies through a depressed food base.

Pyrethroids may also have a direct toxic effect to tidewater gobies, but we are not aware of any sediment toxicity data currently available in open literature that have explored these effects. The U.S. Fish and Wildlife Service has assisted in the investigation of two fish kill events in Ventura County in 2015 and 2016 that were ultimately linked with pyrethroid toxicity (CDFW 2015, S. McMillin, pers. comm. 2016). Both fish kills occurred within the lower portions of coastal watersheds, within tidewater goby habitat and affected thousands of fish. Because tidewater goby are small and cryptic, and because they do not have swim bladders they do not float when dead and would be difficult to detect during a fish kill event. A mesocosm study by Drenner et al. (1992) demonstrated that sediment-bound bifenthrin was biologically available and caused mortality and sub-lethal toxicity to the gizzard shad (*Dorosoma cepedianum*), a filter feeder with similar sediment exposure as the tidewater goby. It is therefore reasonable to assume that sediment-bound pyrethroids may similarly cause direct toxicity to tidewater gobies. The Service is interested in conducting bioassays to determine sediment-bound pyrethroid toxicity to tidewater gobies. This crucial missing information would greatly benefit our understanding of the risk of pyrethroids to this wide-ranged species.

In the absence of specific information relative to the toxicity of sediment-bound pyrethroids to tidewater gobies and California red-legged frogs, we strongly support the approach outlined in the Basin Plan Amendment. We are particularly supportive of the sediment toxicity numeric

target focusing on *Hyaella azteca* 10-day chronic exposures as an appropriate metric to determine whether the sediment toxicity target is being met. We are also supportive of the numeric targets for pyrethroids in water and sediment as appropriate thresholds based on the best data currently available. As pyrethroids are relatively stable in sediment, concentrations may continue to rise in the absence of TMDL implementation, potentially leading to continued degradation of habitats for listed species and the possibility of catastrophic events similar to the fish kills observed in Ventura County. We urge the State Water Resources Control Board to adopt the proposed Basin Plan Amendment and implement the TMDLs as a positive step towards improving sediment quality in the lower Salinas River watershed.

We appreciate the opportunity to provide comments on the proposed approval of the amendment to the basin plan. If you have any questions about these comments, please contact Jenny Marek of my staff at 805-677-3313, or by electronic mail at Jenny_Marek@fws.gov.

Sincerely,



Christopher J. Diel
Acting Assistant Field Supervisor

Cc:

Peter Meertens, Central Coast Regional Water Quality Control Board
Stella McMillin, California Department of Fish and Wildlife

LITERATURE CITED

California Department of Fish and Wildlife. 2015. Investigation into cause of fish kill in J Street Drain near Hueneme Road in Port Hueneme. Report Date: September 15, 2015. Wildlife Investigations Laboratory, Pesticide Investigations, Rancho Cordova, California.

Drenner, R.W., K.D. Hoagland, H.D. Smith, W.J. Barcellona, P.C. Johnson, M.A. Palmeriri, J.F. Hobson. 1992. Effects of sediment bound bifenthrin on gizzard shad and plankton in experimental tank mesocosms. *Environmental Toxicology and Chemistry*. 12:1297-1306.

Swenson, R.O. 1999. The ecology, behavior, and conservation of the tidewater goby, *Eucyclogobius newberryi*. *Environmental Biology of Fishes*. 55: 99-119.

PERSONAL COMMUNICATION

McMillin, S. 2016. Email communication between Stella McMillin of the California Department of Fish and Wildlife, Wildlife Investigations Laboratory, and Jenny Marek of the U.S. Fish and Wildlife Service, Ventura Fish and Wildlife Office, concerning results of pyrethroid tissue analysis on fish from a kill in Revlon Slough, Ventura County. December 2, 2016.