

EXECUTIVE SUMMARY

Key Findings

This Biological Opinion (Opinion) evaluated the effects of the Environmental Protection Agency's (EPA) registration of the pesticides 1,3-D (also referred to as Telone) and metolachlor on Pacific salmonids listed as threatened or endangered under the Endangered Species Act (ESA), along with the designated critical habitats of such salmonids. 1,3-D is a soil fumigant used to control nematodes, wireworms, and symphylans. Metolachlor (racemic metolachlor and s-metolachlor) is a broad-spectrum systemic herbicide that controls plants by inhibiting seedling shoot and meristematic growth.

This Opinion addresses the effects of EPA's registration actions on all the listed Pacific salmonids and critical habitats under the jurisdiction of the National Marine Fisheries Service (NMFS). A complete ESA consultation on EPA's registration of 1,3-D and Metolachlor would encompass all ESA-listed species and designated critical habitat under NMFS jurisdiction. However, in this instance, as a result of the 2002 order in *Washington Toxics Coalition v. EPA* on EPA's registration of 37 pesticides, EPA initiated consultation specifically on listed Pacific salmonids under NMFS' jurisdiction and associated designated critical habitat in the states of California, Idaho, Oregon, and Washington. 1,3-D and Metolachlor are the final set of pesticides identified in the consultation schedule established in the settlement agreement. NMFS' analysis therefore focuses only on the effects of EPA's action on listed Pacific salmonids and their designated critical habitats in the above-mentioned states.

Current product labels permit use on a variety of agricultural and non-agricultural use sites in states relevant to this consultation: Washington, Idaho, Oregon, and California. 1,3-D is applied through drip irrigation or various soil injection methods that require covering the applied product with soil and/or tarping material. Approximately 82% of the 1,3-D products currently available for use also include chloropicrin. Chloropicrin is a broad-spectrum fumigant that can be used as an antimicrobial, fungicide, herbicide, insecticide, and nematocide. Use sites for products containing 1,3-D include vegetable, field crops, fruit and nut crops, nursery crops, mint, and potatoes. Maximum single and annual application rates for general crop categories currently authorized range between 296 and 580 lbs 1,3-D./acre. 1,3-D products that are co-formulated with chloropicrin allow applications of up to 350 lbs chloropicrin/acre.

Metolachlor (racemic metolachlor and s-metolachlor) is a broad-spectrum systemic herbicide that controls plants by inhibiting seedling shoot and meristematic growth. Metolachlor products can be applied pre-plant, pre-emergence, or early post-crop emergence to control seedling grasses or certain broadleaf weeds in a wide range of crops. Maximum single application rates range from 0.64 to 3.75 lbs a.i./A. Labels allow up to two applications per crop cycle, and

multiple crop cycles per year, with maximum annual application rates up to 5.97 lbs a.i./A/year in certain crops. Metolachlor products are formulated as emulsifiable concentrates, flowable concentrates, soluble concentrates, granules, and ready to use mixtures. Metolachlor products can be applied through a variety of ground applications methods including broadcast sprays, banded applications, soil incorporation methods, and co-application with dry bulk granular fertilizer. Metolachlor can also be applied using aircraft and chemigation equipment (EPA 2019).

Current application rates of metolachlor and products containing 1,3-D, and application methods are expected to produce aquatic concentrations of both pesticides that are likely to cause some harm to aquatic species and may contribute to some degradation of designated critical habitats. Species and their prey residing in shallow aquatic habitats proximal to these pesticide use sites are expected to be the most at risk.

Analysis and Methods

The assessment approach utilized interagency methods and procedures that were developed based on the recommendations of the National Academy of Sciences. This framework relied upon multiple lines of evidence to determine effects to populations, species, and their designated critical habitats. The Assessment Framework in Chapter 4 provides a description of the methodology used throughout this Opinion.

When determining the effects of the action (i.e., the registration of pesticides containing 1,3-D and metolachlor) on listed species, we considered many pieces of information including: the direct and indirect toxicity of each chemical to aquatic taxa groups (e.g. fish, invertebrates, and plants) and terrestrial plants (i.e. riparian vegetation); specific chemical characteristics of each pesticide (e.g. degradation rates, bioaccumulation rates, sorption affinities, etc.); expected environmental concentrations calculated for generic aquatic habitats and riparian zones; authorized pesticide product labels; maps showing the spatial overlap of listed species' habitats with pesticide use areas; and species' temporal use of those lands and/or aquatic habitats on which each pesticide has permitted uses. The specific sources of information utilized in our analysis are outlined in Chapter 4.

The effects analysis focused around risk hypotheses, or statements of anticipated effects to species. We employed a weight-of-evidence approach to determine for each risk hypothesis whether the expected risk from pesticide exposure to groups of individuals was high, medium or low. To arrive at that rating for each risk hypothesis, we addressed not only the effect and likelihood of exposure, but also our level of confidence in the risk level. We utilized multiple data sources to evaluate both the likelihood of exposure and the magnitude of effect to groups of individuals occupying similar aquatic habitats. This allowed us to assess the body of evidence that either supported or refuted the risk hypotheses. For each species, all identified risk hypotheses were qualitatively combined into a single determination of risk at the population

scale (i.e., the effects of the action) and represented graphically. A similar, yet separate, analysis was conducted for designated critical habitats where risk hypotheses were developed based on potential pesticide effects to physical or biological features of critical habitat. Generally, these included effects to water quality, vegetative cover, and species' prey items. Detailed effects analyses for both species and critical habitats can be found in Chapters 12 and 15.

Conclusions

As described in Chapter 7, we consulted on all 28 ESA-listed salmonids within the action area as well as their designated critical habitats. In the Integration and Synthesis chapter, we concluded that EPA's proposed registration of pesticides products containing 1,3-D is not likely to jeopardize any of the listed salmonids nor cause destruction or adverse modification to designated critical habitats for the species consulted on. Similarly, we concluded that EPA's proposed registration of pesticides containing metolachlor is not likely to jeopardize or cause destruction or adverse modification to designated critical habitats for any listed salmonids consulted on. The details of our jeopardy and destruction or adverse modification determinations for each species can be found in Chapters 13 and 16.

Minimizing the Impact of Incidental Take

As prescribed by the ESA, the Opinion includes an Incidental Take Statement with reasonable and prudent measures (RPMs) to minimize take to listed species and minimize impacts to essential physical or biological features comprising the species designated critical habitats. These RPMs were drafted in consultation with Applicants and with EPA using the best available information on current agricultural practices and pesticide reduction strategies to minimize incidental take (50 CFR 402). The RPMs require label changes for all products containing these pesticides designed to reduce pesticide loading into aquatic habitats; the development of ESA educational materials to increase awareness of sensitive species in adjacent species habitats; reporting of label compliance monitoring; and clarifications regarding methods of reporting ecological incidents. The Incidental Take Statement and RPMs are presented in Chapter 18 of the Opinion along with associated Terms and Conditions.