AMENDED INCIDENTAL TAKE STATEMENT FROM NATIONAL MARINE FISHERIES SERVICE ENDANGERED SPECIES ACT SECTION 7 BIOLOGICAL OPINION

BIOLOGICAL OPINION ON THE ENVIRONMENTAL PROTECTION AGENCY'S REGISTRATION REVIEW OF PESTICIDE PRODUCTS CONTAINING METOLACHLOR AND 1,3-DICHLOROPROPENE

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1.1 Introduction

Section 7(b)(4) of the ESA requires that when a proposed agency action is found to be consistent with section 7(a)(2) of the ESA, either as proposed by the action agency or modified by a RPA, and the proposed action may incidentally take individuals of ESA-listed species, NMFS will issue a statement that specifies the impact of any incidental taking of endangered or threatened species (incidental take statement). To minimize such impacts, NMFS provides RPMs, and terms and conditions that must be complied with by the Federal agency or any applicant in order to be exempt from the prohibitions against "take" of listed species. Only incidental take resulting from the agency actions and any specified RPMs, and terms and conditions identified in the incidental take statement are exempt from the taking prohibition of section 9(a), pursuant to section 7(o) of the ESA. NMFS believes the RPMs described below are necessary and appropriate to minimize the impacts of incidental take on threatened and endangered species. The measures described below must be undertaken by the U.S. Environmental Protection Agency and applicants so that they become binding conditions for the exemption in section 7(o)(2) to apply.[1]

Section 9(a)(1) of the ESA prohibits the taking of the five endangered Pacific salmonids without a specific permit or exemption. Protective regulations adopted pursuant to section 4(d) of the ESA extend the prohibition to all 23 threatened Pacific salmonid species. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct (50 CFR 222.102). We interpret "harass" as meaning to create the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering (Wieting 2016). Harm is defined by NMFS as an act which actually kills or injures fish or wildlife, and may also include significant habitat modification or degradation that results in death or injury to listed

[1] EPA has identified the companies that hold registrations of technical products to be the applicants for this consultation. Technical products are defined as those products that are used solely to manufacture or formulate other pesticide products, which are referred to as end-use products. RPMs that describe label changes in this Opinion apply to technical registrants. As indicated below, those label changes for technical products will in turn require changes in labels of end-use products that are formulated with those technical products.

species by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding, or sheltering (50 CFR 222.102). Incidental take is defined as takings that result from, but are not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or applicant (50 CFR 402.02). Section 7(o)(2) provide that taking that is incidental to an otherwise lawful agency action is not considered to be prohibited taking under the ESA if that action is performed in compliance with the terms and conditions of this incidental take statement.

1.2 Amount or Extent & Effects of Take

Section 7 regulations require NMFS to specify the impact of any incidental take of endangered or threatened species; that is, the amount or extent, of such incidental taking on the species (50 C.F.R. §402.14(i)(1)(i)). The amount of take represents the number of individuals that are expected to be taken by actions while the extent of take specifies the impact, i.e., the amount or extent of such incidental taking on the species, which may be used if we cannot assign numerical limits for animals that could be incidentally taken during the course of an action (see 80 FR 26832). As described earlier in this Opinion, the proposed action for this consultation is EPA's registrations of all pesticides containing 1,3-D or metolachlor for use as described on product labels. The proposed action includes (1) approved product labels containing 1,3-D or metoachlor, (2) degradates and metabolites of 1,3-D or metolachlor, (3) formulations, including other ingredients within formulations, (4) adjuvants, and (5) tank mixtures. EPA is required to reassess currently registered pesticide active ingredients every 15 years (FQPA; Public Law 104-170). The EPA authorizes use of these pesticide products for pest control purposes across multiple landscapes. The goal of this Opinion is to evaluate the impacts to NMFS' listed resources from the EPA's broad authorization of applied pesticide products. This Opinion is a partial consultation because pursuant to the court's order, in 2002 and 2004, EPA sought consultation on only 26 listed Pacific salmonids under NMFS' jurisdiction.[2] However, even though the court's order did not address the two more recently listed ESUs and DPSs, NMFS analyzed the impacts of EPA's actions to them because they belong to the same taxon and the analysis requires consideration of the same information. Consultation with NMFS on the registration of products containing 1,3-D and metolachlor is completed as to the above- referenced species with this Opinion. This Opinion does not address any other species for which EPA may need to complete additional BEs and, where appropriate, initiate consultation.

For this Opinion, NMFS anticipates the general effects that would occur from EPA's registration of pesticide products to 28 listed Pacific salmonids under NMFS' jurisdiction during the 15-year duration of the proposed action. Pesticide runoff and drift are the predominant pathways in which pesticides, including these a.i.s, could reach streams and other aquatic sites when they are applied to areas located adjacent to wetlands, riparian areas, ditches, floodplain habitats, intermittent streams, and nearshore estuarine and marine habitats. The likelihood for these inputs into aquatic habitats are especially high when rainfall immediately follows applications, or if wind conditions exacerbate inputs from drift. The effects of pesticides and other contaminants found in urban runoff, especially from areas with a high degree of impervious surfaces, may also

[2] Two species have been listed since the 2004 BE was submitted to NMFS from EPA

exacerbate degraded water quality conditions of receiving waters. Urban runoff is also generally warmer in temperature, and elevated water temperature poses negative effects to many listed species. The range of effects of the two a.i.s on listed species includes killing species directly and impacts to salmonid habitat including reduced cover from the pesticides herbicidal activity, and reductions in prey from acute lethality, or reductions in aquatic and riparian vegetation upon which certain prey rely. Reductions in prey can impair growth and fitness. For example, impaired growth extends the time juveniles remain prone to becoming prey to predators, and starvation may make species more susceptible to disease or render them unable to smolt. These results are not the purpose of the proposed action. Therefore, incidental take of listed species is reasonably certain to occur over the 15-year duration of the proposed action.

Given the variability of real-life conditions, the broad nature and scope of the proposed action, and the wide-ranging distributions of individuals of listed species, the best scientific and commercial data available are not sufficient to enable NMFS to directly estimate a specific amount of incidental take associated with the proposed action. As explained in the Description of the Proposed Action and the Effects of the Proposed Action sections, NMFS identified multiple uncertainties associated with the proposed action. Areas of uncertainty include:

1. Limited information on use and exposure data on stressors of the action for non-agricultural uses of these pesticides;
2. Minimal information on exposure and toxicity for pesticide formulations, adjuvants, and other/inert ingredients within registered formulations;
3. Minimal information on tank mixtures and associated exposure estimates;
4. Limited data on toxicity and composition of environmental mixtures;
5. Variability in annual land use, crop cover, and pest pressure;
6. Temporal and spatial variability of individuals;
7. Pesticide concentrations in nearshore estuarine and marine habitats
8. Pesticide concentrations resulting from non-agricultural uses

Additionally, NMFS recognizes there are multiple impediments that reduce the likelihood of detecting take to listed species from the use of pesticides. It is important to place the significance of mortality incidents in the proper context. Vyas (1999) concluded that most wildlife mortality is unaccounted for, as only a small fraction are likely observed, reported, and confirmed. The likelihood of detecting impacts becomes even more difficult in species with limited abundance.

NMFS therefore identifies, as a surrogate for the allowable extent of take, the ability of this action to proceed without any fish mortality reported to EPA within the action area attributable to the legal use of 1,3-D and metolachlor, or any associated compounds, degradates, or mixtures affecting aquatic habitats containing listed species. Because of the difficulty of detecting mortality of listed species, individuals killed do not have to be listed species in order for their death to be considered a relevant surrogate for take. For example, salmonids are relatively

sensitive to pesticides compared to other species of fish, so that if there is mortality of other freshwater fishes attributable to use of these pesticides within the listed species range, it is likely that salmonids have also died, even if no dead salmonids can be located. In addition, if stream conditions due to pesticide use kill less sensitive fishes in certain areas, the potential for lethal and non-lethal takes in downstream areas increases. Because fish mortalities can easily go unobserved or unaccounted for, an exceedance of take occurs when any fish mortality is reported to EPA and attributed to the use of these active ingredients by EPA. Both "minor" and "major" incidents involving fish kills are considered attributable to one of these active ingredients, its metabolites, or degradates, if the available information suggests a certainty index of "probable" or "highly probable" as defined in EPA's guidance for using incident data (EPA October 13, 2011; https://www.epa.gov/pesticide-science-and-assessing-pesticide-risks/guidance-using-incident-data-evaluating-listed-and#guidance).

1.3 Reasonable and prudent measures

RPMs are measures to minimize the amount or extent of incidental take (50 C.F.R. §402.02). Only incidental take resulting from the agency actions and any specified RPMs, and terms and conditions identified in the incidental take statement are exempt from the taking prohibition of section 9(a), pursuant to section 7(o) of the ESA. NMFS believes the RPMs described below are necessary and appropriate to minimize the impacts of incidental take on threatened and endangered species:

- RPM 1. Revise and approve product labels and develop relevant EPA Endangered Species Protection Plan Bulletins to conserve listed species.
- RPM 2. Improve ecological incident reporting, develop ESA educational materials, and report label compliance.

1.4 Terms and Conditions

In order for any incidental take to be exempt from the prohibitions of section 9 of the ESA, EPA and applicants must comply with the following terms and conditions that are applicable to them, which implement the RPMs described above. These include the take minimization, monitoring and reporting measures required by the section 7 regulations (50 C.F.R. §402.14(i)). If EPA or applicants fail to ensure compliance with the applicable terms and conditions to implement the RPMs, the protective coverage of section 7(o)(2) may lapse.

1.4.1 RPM 1: Revise product labels and develop relevant EPA Endangered Species Protection Plan Bulletins to conserve listed species.

A. Terms and Conditions for Applicants

To address RPM number one, applicants with registrations for products containing 1,3-D or metolachlor shall submit to EPA the following label amendments. Label amendments shall be submitted to EPA within 60 days of the issuance date of this Biological Opinion.

1. Amendments according to the risk mitigation procedures outlined in EPA's Proposed Interim Registration Review Decision for products containing 1,3-D (Docket Number EPA-HQ-OPP-2013-0154) and Interim Registration Review Decision for products containing metolachlor (Docket Number EPA-HQ-OPP-2014-0772).
2. Additional Amendments. Applicants shall submit to EPA the following label amendments for all technical and manufacturing use products:

   The following statements shall be placed at the beginning of the Directions for Use section:

   "This product may only be formulated into end-use products that contain the following language on their labeling when they are released for shipment:

   "ENDANGERED SPECIES PROTECTION REQUIREMENTS" (to be placed at the beginning of the Directions for Use section of all end-use product labels):

   "It is a Federal offense to use any pesticide in a manner that results in an unauthorized "take" (e.g., kill or otherwise harm) of an endangered species, and certain threatened species, under the Endangered Species Act Section 9. When using this product, you must follow the measures contained in the Endangered Species Protection Bulletin for the area in which you are applying the product. You must obtain a Bulletin no earlier than six months before using this product. To obtain Bulletins, consult http://www.epa.gov/espp/, call 1-844-447-3813, or email ESPP@epa.gov. You must use the Bulletin valid for the month in which you will apply the product."

B. Terms and Conditions for EPA

To address RPM number one, EPA shall:

1. Within 10 business days of the issuance date of this Biological Opinion, notify all end-use product registrants of products containing 1,3-D or metolachlor of the need to submit label amendments

   EPA shall notify all end-use product registrants to submit, within 60-days of EPA's notification, the necessary amendments to their end-use product labels, to be consistent with the technical/manufacturing use product label amendments described in RPM 1, Terms and Conditions for Applicants. Specifically, EPA shall notify end-use product registrants of the following necessary label language to be added to the beginning of the "Directions for Use" section of all end-use product labels:

   "Endangered Species Protection Requirements:

   It is a Federal offense to use any pesticide in a manner that results in an unauthorized "take" (e.g., kill or otherwise harm) of an endangered species, and certain threatened species, under the Endangered Species Act Section 9. When using this product, you must follow the measures contained in the Endangered Species Protection Bulletin for the area in which you are applying the product. You must obtain a Bulletin no earlier than six months before using this product. To obtain

Bulletins, consult http://www.epa.gov/espp/, call 1-844-447-3813, or email ESPP@epa.gov. You must use the Bulletin valid for the month in which you will apply the product."

2. No later than January 31st, 2023, review and act on all of the registrants' request to amend labels.
3. No later than January 31st, 2023, develop Endangered Species Protection Bulletins (https://www.epa.gov/endangered-species/endangered-species-protection-bulletins). EPA shall develop Endangered Species Protection Bulletins that include the following geographically specific use limitations:

a) When applying 1,3-D products within 30 meters of salmonid habitat (surface waters accessible to salmon, including, but not limited to lakes, reservoirs, rivers, streams, inundated floodplains, wetlands or natural ponds, estuaries and marine near-shore areas):

i. Do not apply this product when soil is saturated, or when a storm event likely to produce runoff from the treated area is forecasted (by NOAA/National Weather Service, or other similar forecasting service) to occur within 48 hours following application; AND,

ii. When 1,3-D is co-applied with chloropicrin, AND chloropicrin application rates exceed 145 lbs chloropicrin/acre, implement one of the following additional measures:

- Presence and maintenance of riparian plantings (e.g., hedgerows) or functional riparian system (e.g., CRP riparian buffers).
- Vegetative filter strip ≥ 5 m wide
- Vegetated ditches
- Run-off retention pond
- Deep application – injection of the fumigant at a depth ≥18 inches below the soil surface
- Low permeability (high barrier) tarp. For more information, see a list of highly impermeable tarps for products that contain both chloropicrin and 1,3-dichloropropene at EPA's fumigant tarp website https://www.epa.gov/soil-fumigants/tarps:
    1. Installed immediately (≤ 30 minutes) after application
    2. Tarp must be left intact (unperforated) for a minimum of 5 days
    3. Tarp removal must not begin until at least 2 hours after tarp perforation is complete
    4. Planting or transplanting must not begin until at least 48 hours after the tarp perforation is complete

5. Minimum distance from injection point to soil/air interface of 8 inches

- Please note the following option is under development and will be updated when active:
    - Participation in recognized stewardship program

b) When applying metolachlor products within 50 meters of salmonid habitat (surface waters accessible to salmon, including, but not limited to lakes, reservoirs, rivers, streams, inundated floodplains, wetlands or natural ponds, estuaries and marine near-shore areas):

i. Do not apply this product when soil is saturated, or when a storm event likely to produce runoff from the treated area is forecasted (by NOAA/National Weather Service, or other similar forecasting service) to occur within 48 hours following application.

1.4.2 RPM 2: Improve ecological incident reporting, develop ESA educational materials, report label compliance

A. Terms and Conditions for Applicants

To address RPM number two, applicants shall submit to EPA the following label amendments for all technical and manufacturing use products containing 1,3-D or metolachlor. Label amendments shall be submitted to EPA within 60 days of the issuance date of this Biological Opinion.

The following statements shall be placed in the Directions for Use section of the label:

> *"This product may only be formulated into end-use products that contain the following language on their labeling when they are released for shipment: "Reporting Ecological Incidents (to be placed in the Environmental Hazards section of all end-use product labels):*
>
> *To report ecological incidents, including mortality, injury, or harm to plants and animals, call [registrant phone number]."""*

The goal of this term and condition is to increase the probability that ecological incidents that may be associated with a pesticide application, if observed, will be reported to the pesticide registrant and thus captured within the existing FIFRA 6(a)(2) framework.

B. Terms and Conditions for EPA

To address RPM number two:

1. Label Amendments.

a) Within 10 business days of the issuance date of this biological opinion, EPA shall notify all end-use product registrants of products containing 1,3-D or metolachlor of the need to submit label amendments.

EPA shall notify all end-use product registrants to submit, within 60-days of EPA's notification, the necessary amendments to their end-use product labels, to be consistent with the technical/manufacturing use product label amendments described in RPM 2, Terms and Conditions for Applicants. Specifically, EPA shall notify end- use product registrants of the following necessary label language to be added to the "Environmental Hazards" section of all end-use product labels:

"Reporting Ecological Incidents:

To report ecological incidents, including mortality, injury, or harm to plants and animals, call [registrant phone number]."

b) No later than January 31st, 2023, EPA shall review and act on the registrants' requests to amend labels as described above.

2. Reporting of Ecological Incidents. Within two years of this Biological Opinion, EPA shall commence annual reporting to NMFS the occurrence of all minor and major ecological incidents involving fish kills attributable to the use of products containing 1,3-D or metolachlor.

3. ESA Conservation Educational Materials. EPA shall amend the Endangered Species Protection Bulletin to include a link to generic ESA conservation educational materials. This material is to be jointly developed by NMFS and EPA and maintained on either a NMFS or EPA website. In addition to providing a link, the Endangered Species Protection Bulletins should include an advisory note encouraging applicators to review the information. This information should be provided to users who make inquiries regarding the geographic area associated with range and/or designated critical habitat of ESA-listed Pacific salmonid habitat. EPA shall work with NMFS to further develop these materials with the goal of amending the Endangered Species Protection Bulletin within one year of the date of this Biological Opinion. At a minimum, the information made available should include:

    i. How to assess which listed species may be within the area of application (the reviewer could be directed to the Bulletins Live for this and other pertinent requirements and information)

    ii. Information on risks to those species

    iii. Risk reduction measures

    iv. Other best management practices

    v. Ways to develop or enroll into watershed stewardship programs

4. Label Compliance Monitoring. EPA shall work with NMFS to determine a feasible means by which EPA will report to NMFS a summary of relevant compliance data on an annual basis. The goal of this term and condition is to establish a process by which NMFS can better access information regarding label compliance for pesticides subject to ESA Section 7 consultations. EPA shall work with NMFS to develop a process of

effectiveness monitoring which utilizes existing FIFRA compliance monitoring strategies.

1.5 Conservation Recommendations

Section 7(a)(1) of the ESA directs Federal agencies to use their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on ESA-listed species or critical habitat, to help implement recovery plans or develop information (50 C.F.R. §402.02).

The following conservation recommendations would provide information for future consultations involving future authorizations of pesticide active ingredients that may affect ESA-listed species:

1. Develop models that more accurately quantify pesticide exposure in estuarine and near- shore ocean environments.
2. Work with other appropriate federal, state, and local partners to determine efficacy of riparian area management methods in reducing pesticide loading from authorized uses, especially the types of vegetation and width of riparian areas needed; and to encourage the development of watershed stewardship programs involving stakeholders within local watersheds.
3. Encourage adoption of stewardship programs, responsible pesticide handling, use of IPM practices, and other programs that reduce pesticide loading into species' habitats.
4. Carryout educational outreach on pesticide risks to threatened and endangered.
5. Develop improved methods for characterizing exposure from non-agricultural uses.

In order for NMFS' Office of Protected Resources Endangered Species Act Interagency Cooperation Division to be kept informed of actions minimizing or avoiding adverse effects on, or benefiting, ESA-listed species or their critical habitat, the EPA should notify the Endangered Species Act Interagency Cooperation Division of any conservation recommendations they implement in their final action.

1.6 Reinitiation Notice

This concludes formal consultation for the Environmental Protection Agency's proposed registration of pesticide products containing 1,3-D or metolachlor to ESA-listed salmonids under the jurisdiction of the NMFS. As 50 C.F.R. §402.16 states, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if:

1. The amount or extent of taking specified in the incidental take statement is exceeded.
2. New information reveals effects of the agency action that may affect ESA-listed species or critical habitat in a manner or to an extent not previously considered.

3. The identified action is subsequently modified in a manner that causes an effect to ESA-listed species or designated critical habitat that was not considered in this Opinion.
4. A new species is listed or critical habitat designated under the ESA that may be affected by the action.

NMFS' analysis and conclusions are based on EPA's action. If changes to product labeling result in modifications to the action that were not considered in this Opinion, including but not limited to label modifications authorizing pesticide application to new locations, additional application methods, or increased application rates or numbers of applications, EPA must contact NMFS to discuss potential reinitiation. If reinitiation of consultation appears warranted due to one or more of the above circumstances, EPA must contact NMFS Office of Protected Resources, ESA Interagency Cooperation Division. In the event reinitiation condition (1), (2), or (3) is met, reinitiation will be only for the a.i.(s) which meet that condition, not for all a.i.s considered in the Opinion. If none of these reinitiation triggers are met within the next 15 years, then reinitiation will be required because the Opinion only covers the action for 15 years. It is recommended that EPA request reinitiation with sufficient time prior to reaching 15 years to allow sufficient time to consult and to prevent lapse of coverage for the active ingredients in this Opinion.