



Ingredients Used in Pesticide Products

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Chlorpyrifos

Chlorpyrifos is an organophosphate insecticide, acaricide and miticide used primarily to control foliage and soil-borne insect pests.

On November 2, 2023, the U.S. Court of Appeals for the Eighth Circuit issued a ruling vacating EPA's final rule revoking all food tolerances of chlorpyrifos and remanding the matter to EPA for further proceedings. As a result of this decision, all food tolerances for chlorpyrifos that existed prior to the issuance of the final rule revoking these tolerances were reinstated once the court's mandate was issued on December 28, 2023. On February 5, 2024, EPA issued a Federal Register notice to amend the Code of Federal Regulations to reflect the court's reinstatement of those tolerances.

The Eighth Circuit's decision stated that EPA should have considered modification of tolerances in addition to complete revocation and noted that the Agency had "identified 11 specific candidates" of food and feed crop uses in a Proposed Interim Registration Review Decision (PID) for chlorpyrifos that EPA issued in 2020. Consequently, the Agency expects to expeditiously propose a new rule to revoke the tolerances associated with all but the 11 uses referenced by the court. EPA is also engaged in discussions with the registrants to further reduce exposures associated with the 11 uses of chlorpyrifos that were referenced by the Eighth Circuit.

EPA will continue to work to protect farmworkers, endangered species and their habitats, and the nation's most vulnerable populations (including children) through its ongoing registration review and ESA processes for chlorpyrifos uses.

At this time, final cancelations orders, including their terms for existing stocks of products subject to those cancellation orders, and related return programs for chlorpyrifos products, remain in place, unless and until amended by EPA.

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Basic Information

Chlorpyrifos has been used as a pesticide since 1965 in both agricultural and non-agricultural areas.

On August 20, 2021, EPA issued a final rule revoking all chlorpyrifos tolerances and setting an expiration date for those tolerances of February 28, 2022. Applications of chlorpyrifos to food commodities after February 28, 2022 resulted in food being considered adulterated; distribution of adulterated food in interstate commerce is unlawful under the FFDCA. On

November 2, 2023, the U.S. Court of Appeals for the Eighth Circuit issued a ruling vacating EPA's final rule revoking all food tolerances of chlorpyrifos and remanding the matter to EPA for further proceedings. Those tolerances were reinstated on December 28, 2023 when the Eighth Circuit issued its mandate of its November 2023 decision. EPA also issued a Federal Register notice to amend the Code of Federal Regulations to reflect the court's reinstatement of those tolerances.

Non-agricultural, non-food uses were unaffected and will be considered as EPA completes its registration review of this chemical.

Non-food products are sold as liquids, granules, water-dispersible granules, wettable powders, and water-soluble packets, and may be applied by ground equipment.

Using Chlorpyrifos Products Safely

In accordance with the Federal Insecticide, Fungicide, Rodenticide Act (FIFRA), EPA only registers a pesticide when it determines that it will not cause unreasonable adverse effects on humans or the environment, while considering the economic, social, and environmental costs and benefits of the use of the pesticide. EPA reviews and approves label directions to ensure that pesticides can be used without posing unreasonable adverse effects to the environment, including ensuring that the use will not result in dietary risk inconsistent with the FFDCA safety standard.

The key to ensuring that the pesticide will not cause unreasonable adverse effects is for all users to read and closely follow the label directions.

The current chlorpyrifos labels require workers handling and applying chlorpyrifos to wear additional personal protective equipment (chemical resistant gloves, coveralls, respirators).

EPA Actions and Regulatory History

Since its first registration in 1965, chlorpyrifos has been reviewed several times by EPA for tolerance reassessment, reregistration, and most recently, as part of its ongoing registration review [-https://epa.gov/pesticide-reevaluation/registration-review-process](https://epa.gov/pesticide-reevaluation/registration-review-process). The following timeline summarizes the work EPA has done to ensure that, as science and technology evolve, registered chlorpyrifos products remain safe for use.

2000 – Voluntary Agreement to Eliminate, Phase Out and Modify Certain Uses

In 1996, the Food Quality Protection Act (FQPA) set a more stringent safety standard to be especially protective of children. After finalizing the chlorpyrifos risk assessments for reregistration, EPA identified the need to modify certain chlorpyrifos uses to meet the revised standard of safety, and to address health and environmental risks from chlorpyrifos exposure. In 2000, the registrants of chlorpyrifos voluntarily entered into an agreement with EPA to eliminate, phase out, and modify certain uses. Some examples of the voluntary cancellations and modifications in the agreement include:

- Eliminating most homeowner uses, except ant and roach baits in child resistant packaging and fire ant mound treatments, and phasing out all termiticide uses.
- Discontinuing all uses of chlorpyrifos products in the United States on tomatoes, restricting use on apples to pre-bloom and dormant application, and lowering the grape tolerance (maximum residue level) to reflect the labeled dormant application.

2002 – Label Changes to Ensure Environmental and Worker Safety

In 2002, EPA made a number of changes to the required safety measures that improved safety for the environment and for those applying this pesticide including:

- Use of buffer zones to protect water quality, fish and wildlife;

- Reductions in application rates per season on a variety of crops including citrus and corn; and
- Increase in amount of personal protective equipment <https://epa.gov/emergency-response/personal-protective-equipment> to mitigate risk to agricultural workers.

Read the 2006 Registration Eligibility Decision (RED) for chlorpyrifos, which finalized the 2002 Interim RED, and includes an overview of the chlorpyrifos human health risk assessment for reregistration https://www3.epa.gov/pesticides/chem_search/reg_actions/reregistration/red_pc-059101_1-jul-06.pdf.

2011 – Preliminary Human Health Risk Assessment

In 2011, as part of the registration review process, EPA completed a comprehensive preliminary human health risk assessment for all chlorpyrifos uses. This assessment included the results of extensive new research and the findings of a number of new studies that had become available since the Agency's last human health risk assessment for chlorpyrifos, completed in June 2000.

Read the 2011 human health risk assessment for chlorpyrifos [☑](#).

2012 – Spray Drift Mitigation and Changes to Application Rates

In 2012, EPA significantly lowered the aerial pesticide application rates and created “no-spray” buffer zones for ground, airblast and aerial application methods around public spaces, including recreational areas, schools, homes and other sensitive areas to be protective of children and other bystanders.

Read the 2012 Spray Drift Mitigation Decision for chlorpyrifos [☑](#).

2014 – Revised Human Health Risk Assessment

In 2014, as part of the registration review process, EPA completed a revised human health risk assessment for all chlorpyrifos uses. The assessment updated the June 2011 preliminary human health risk assessment based on new information received, including public comments. EPA factored in exposures from multiple sources including from the exposures from food and water, from inhaling the pesticide and through the skin. EPA considered all populations including infants, children, and women of child-bearing age. EPA incorporated information from a 2012 assessment of spray drift exposure and as well as new restrictions put into place to limit spray drift.

Read the 2014 human health risk assessment for chlorpyrifos [☑](#).

2016 – Revised Human Health Risk Assessment

After receiving public comments on the 2014 risk assessment and feedback from the FIFRA Scientific Advisory Panel (SAP), EPA revised its human health risk assessment for chlorpyrifos in 2016, which was published subsequent to the issuance of the proposed rule, and retained the 10X FQPA Safety Factor.

Read the 2016 human health risk assessment for chlorpyrifos [☑](#).

2020 – Draft Ecological Risk Assessment and Revised Human Health Risk Assessment

In Sept. 2020, EPA issued the following assessments: *Chlorpyrifos: Draft Ecological Risk Assessment for Registration Review*, [☑](https://www.regulations.gov/document/epa-hq-opp-2008-0850-0940) <https://www.regulations.gov/document/epa-hq-opp-2008-0850-0940> the *Chlorpyrifos: Third Revised Human Health Risk Assessment for Registration Review* [☑](https://www.regulations.gov/document/epa-hq-opp-2008-0850-0944) <https://www.regulations.gov/document/epa-hq-opp-2008-0850-0944>, and the *Updated Chlorpyrifos Refined Drinking Water Assessment for Registration Review* [☑](#).

The draft ecological risk assessment describes the ecological risks posed by the uses of chlorpyrifos in the context of FIFRA, by providing a range of screening risk quotients. In the 2020 Third Revised Human Health Risk Assessment, EPA utilized the same

endpoint and points of departure as those used in the 2014 human health risk assessment. This was done because the Agency concluded that the science addressing neurodevelopmental effects remained unresolved and further evaluation of the science during the remaining time for completion of registration review was warranted.

While in the 2020 revised human health risk assessment the Agency determined that risks from exposures to chlorpyrifos residues in food were not of concern, drinking water exposures significantly add to those risks. When considering the drinking water contribution from all registered uses, the Agency's levels of concern were exceeded when combined with food and residential exposures.

Due to the large number of files in support of the Updated Chlorpyrifos Refined Drinking Water Assessment for Registration Review, instructions to access to those attachments are provided below. **Download and Unzip Instructions:**

1. Hover over the file name, right-click the file link.
2. Save file to a local directory following displayed instructions.
3. To unzip all the contents of the zipped folder, right-click the zip file, select Extract All, and then follow the instructions.
4. When accessing additional zip files within the subfolders, step 3 will need to be repeated.

Attachments

- Attachment 1 - Master Use Summary (PDF) <<https://www3.epa.gov/pesticides/nas/chlorpyrifos/dwa/attachment-1.pdf>>(14 pp, 640 K)
- Attachment 2 - Usage Files (ZIP) <<https://www3.epa.gov/pesticides/nas/chlorpyrifos/dwa/attachment-2.zip>>(1 pg, 2.5 MB)
- Attachment 3 - (Modeling Input and Output Files) PCA Analysis (XLSX) <<https://www3.epa.gov/pesticides/nas/chlorpyrifos/dwa/attachment-3.xlsx>>(1 pg, 12.9 MB)
- Attachment 3 - (Modeling Input and Output Files) PCA-PCT Aggregate Analysis, Upper Bound HUC04 (ZIP) <<https://www3.epa.gov/pesticides/nas/chlorpyrifos/dwa/attachment-3-ubhuc04.zip>>(1 pg, 198.9 MB)
- Attachment 3 - (Modeling Input and Output Files) PCA-PCT Aggregate Analysis, Upper Bound HUC07a (ZIP) <<https://www3.epa.gov/pesticides/nas/chlorpyrifos/dwa/attachment-3-ubhuc07a.zip>>(1 pg, 198.9 MB)
- Attachment 3 - (Modeling Input and Output Files) PCA-PCT Aggregate Analysis, Upper Bound HUC07b (1 of 2) (ZIP) <<https://www3.epa.gov/pesticides/nas/chlorpyrifos/dwa/attachment-3-ubhuc07b-results-a.zip>>(1 pg, 615 MB)
- Attachment 3 - Modeling Input and Output Files) PCA-PCT Aggregate Analysis, Upper Bound HUC07b (2 of 2) (ZIP) <<https://www3.epa.gov/pesticides/nas/chlorpyrifos/dwa/attachment-3-ubhuc07b-results-b.zip>>(1 pg, 541.8 MB)
- Attachment 3 - (Modeling Input and Output Files) PCA-PCT Aggregate Analysis, Upper Bound HUC09 (ZIP) <<https://www3.epa.gov/pesticides/nas/chlorpyrifos/dwa/attachment-3-ubhuc09.zip>>(1 pg, 138.6 MB)
- Attachment 3 - (Modeling Input and Output Files) Chlorpyrifos SIAB Use and Usage Matrix (XLSX) <<https://www3.epa.gov/pesticides/nas/chlorpyrifos/dwa/attachment-3-usagematrix.xlsx>>(1 pg, 143 K)
- Attachment 3 - (Modeling Input and Output Files) PWC Average Use Rates (1 of 2) (ZIP) <<https://www3.epa.gov/pesticides/nas/chlorpyrifos/dwa/attachment-3-use-rates-a.zip>>(1 pg, 121.2 MB)
- Attachment 3 - (Modeling Input and Output Files) PWC Average Use Rates (2 of 2) (ZIP) <<https://www3.epa.gov/pesticides/nas/chlorpyrifos/dwa/attachment-3-use-rates-b.zip>>(1 pg, 110.7 MB)
- Attachment 3 - (Modeling Input and Output Files) PWC Average Upper Bound Rates (1 of 2) (ZIP) <<https://www3.epa.gov/pesticides/nas/chlorpyrifos/dwa/attachment-3-upp-rates-a.zip>>(1 pg, 125.9 MB)
- Attachment 3 - (Modeling Input and Output Files) PWC Average Upper Bound Rates (2 of 2) (ZIP) <<https://www3.epa.gov/pesticides/nas/chlorpyrifos/dwa/attachment-3-upp-rates-b.zip>>(1 pg, 106.8 MB)
- Attachment 4 - Monitoring Data Files (ZIP) <<https://www3.epa.gov/pesticides/nas/chlorpyrifos/dwa/attachment-4.zip>>(1 pg, 736.4 MB)

The assessments are available in the public docket in EPA-HQ-OPP-2008-0850 [🔗](https://www.regulations.gov/docket/epa-hq-opp-2008-0850) <<https://www.regulations.gov/docket/epa-hq-opp-2008-0850>> at www.regulations.gov [🔗](https://www.regulations.gov/) <<https://www.regulations.gov/>>.

2020 – Proposed Interim Decision

In Dec. 2020, EPA released the *Proposed Interim Decision for the Registration Review of Chlorpyrifos* <<https://epa.gov/ingredients-used-pesticide-products/proposed-interim-decision-registration-review-chlorpyrifos>> for a 60-day public comment period. EPA also invited comments on the benefits assessments, the Sept. 2020 revised human health risk assessment, draft ecological risk assessment, and revised drinking water assessment. By holding the comment period at the same time, the public had access to more information and could provide more informed, robust comments. On Feb. 5, 2021, EPA extended the public comment period for an additional 30 days until Mar. 7, 2021. EPA is currently reviewing public input and will respond to comments prior to issuing an interim decision.

EPA Action on the Federal Food, Drug, and Cosmetic Act (FFDCA) Petition and Litigation

2007 FFDCA Petition

In Sept. 2007, environmental advocacy organizations submitted a petition [🔗](https://www.nrdc.org/sites/default/files/hea_10072201a.pdf) <https://www.nrdc.org/sites/default/files/hea_10072201a.pdf> to EPA under FFDCA, requesting that EPA revoke all chlorpyrifos tolerances and cancel all chlorpyrifos registrations.

2015 Proposed rule to revoke tolerances

In 2015, EPA proposed to revoke chlorpyrifos tolerances. (80 FR 69080 (Nov. 6, 2015)). Based on data available at the time, the Agency concluded that it was unable to make a safety finding as required under FFDCA due to exposure to drinking water in certain watersheds. EPA acknowledged that it was continuing to work on additional hazard analysis and refinements to its drinking water assessment. Then in 2016, EPA revised its human health risk assessment and drinking water exposure assessment. The Agency sought additional comment on those documents, which provided further support for the tolerance revocation proposal (81 FR 81049 (Nov. 17, 2016)).

2017–2019 – Denial of Petition to Revoke Tolerances

In Mar. 2017, EPA denied the 2007 petition requesting revocation of all pesticide tolerances for chlorpyrifos. The Agency concluded that despite several years of study, the science addressing neurodevelopmental effects remains unresolved and further evaluation of the science during the remaining time for completion of registration review is warranted. As a part of the ongoing registration review, the Agency stated that it would continue to review the science addressing neurodevelopmental effects of chlorpyrifos.

Read the Federal Register notice announcing our response to the petition [🔗](#).

Several parties filed objections to EPA's denial of the petition. The Agency responded, by issuing an order denying those objections. EPA concluded that the data provided with the 2007 petition were not sufficiently valid, complete, and reliable to support the request for revocation.

Read the Federal Register notice announcing our response to the petition [🔗](#).

Ninth Circuit litigation

Environmental advocacy groups and several States challenged EPA's denial orders in the U.S. Court of Appeals for the Ninth Circuit. In Apr. 2021, the Ninth Circuit [🔗](https://cdn.ca9.uscourts.gov/datastore/opinions/2021/04/29/19-71979.pdf) <<https://cdn.ca9.uscourts.gov/datastore/opinions/2021/04/29/19-71979.pdf>> issued its decision, finding that EPA's denial was arbitrary and capricious based on the record before the Court and directing EPA to grant the petition, issue a final rule revoking the tolerances or modifying the tolerances if EPA could determine the tolerances were safe, and to modify or cancel food-use registrations for chlorpyrifos under FIFRA.

2021 – Final Tolerance Rule

In Aug. 2021, EPA released the Final Tolerance Rule for Chlorpyrifos [🔗](https://www.regulations.gov/document/epa-hq-opp-2021-0523-0001) <<https://www.regulations.gov/document/epa-hq-opp-2021-0523-0001>>, which revoked all tolerances for chlorpyrifos for chlorpyrifos. With this action, EPA complied with the Ninth Circuit's order directing EPA to issue a final rule in response to the 2007 petition. The final rule for chlorpyrifos is located in docket EPA-HQ-OPP-2021-0523 [🔗](https://www.regulations.gov/docket/epa-hq-opp-2021-0523) <<https://www.regulations.gov/docket/epa-hq-opp-2021-0523>> at www.regulations.gov [🔗](https://www.regulations.gov) <<https://www.regulations.gov>>.

On Feb. 25, 2022 <<https://epa.gov/newsreleases/epa-takes-next-step-keep-chlorpyrifos-out-food-protecting-farmworkers-and-childrens>>, EPA released its response denying the objections and requests for hearing on those objections to the final rule as well as requests to stay the final rule. The response to the objections for chlorpyrifos is located in docket EPA-HQ-OPP-2021-0523 [🔗](https://www.regulations.gov/docket/epa-hq-opp-2021-0523) <<https://www.regulations.gov/docket/epa-hq-opp-2021-0523>> at www.regulations.gov [🔗](https://www.regulations.gov) <<https://www.regulations.gov>>. EPA also issued letters to the registrants of chlorpyrifos products with registered food uses, confirming that tolerances expired as of Feb. 28, 2022, and requesting registrants act to cancel these uses.

The majority of registrants submitted cancellation requests and/or label amendments to reflect the tolerance revocation.

On Aug. 31, 2022, EPA issued a cancellation order [🔗](https://www.federalregister.gov/documents/2022/08/31/2022-18838/cancellation-order-for-certain-chlorpyrifos-registrations) <<https://www.federalregister.gov/documents/2022/08/31/2022-18838/cancellation-order-for-certain-chlorpyrifos-registrations>> responding to several requests to voluntarily cancel whole chlorpyrifos products. In addition, on Dec. 14, 2022, EPA published a notice of receipt of voluntary requests to cancel [🔗](https://www.regulations.gov/docket/epa-hq-opp-2022-0223) <<https://www.regulations.gov/docket/epa-hq-opp-2022-0223>> certain pesticide registrations and terminate food uses. On Dec. 14, 2022, EPA issued a Notice of Intent to Cancel [🔗](https://www.regulations.gov/document/epa_frdoc_0001-29051) <https://www.regulations.gov/document/epa_frdoc_0001-29051> (NOIC) three chlorpyrifos pesticide products because the registrant's request for voluntary cancellation did not remove all food uses from the labels.

2023 Update

EPA's 2021 Final Tolerance Rule was challenged by a chlorpyrifos registrant and several grower groups in the Eighth Circuit Court of Appeals. On November 2, 2023, the Eighth Circuit issued a ruling vacating EPA's final rule and remanding the matter to EPA for further proceedings.

As of the issuance of the Eighth Circuit's mandate on December 28, 2023, all chlorpyrifos tolerances are automatically in effect once again.

The Eighth Circuit's decision stated that EPA should have considered modification of tolerances in addition to complete revocation and noted that the Agency had "identified 11 specific candidates" of food and feed crop uses in a PID EPA issued in 2020. Consequently, the Agency expects to expeditiously propose a new rule to revoke the tolerances associated with all but the 11 uses referenced by the court.

EPA is also engaged in discussions with the registrants to further reduce exposures associated with the 11 uses of chlorpyrifos that were referenced by the Eighth Circuit, a process that will also include taking into account the 2020 draft document and public comments received thereto. This approach would allow use on alfalfa, apple, asparagus, cherry (tart), citrus, cotton, peach, soybean, strawberry, sugar beet, wheat (spring), and wheat (winter) with additional restrictions for geographic location and rate of application to address safety of the tolerances, as well as potential additional restrictions to protect farmworkers and other vulnerable populations, and vulnerable species and their habitats.

In addition, chlorpyrifos is currently under registration review and the Agency continues to work to implement the National Marine Fisheries Service's 2022 Biological Opinion [🔗](https://www.fisheries.noaa.gov/resource/document/biological-opinion-chlorpyrifos-diazinon-and-malathion) <<https://www.fisheries.noaa.gov/resource/document/biological-opinion-chlorpyrifos-diazinon-and-malathion>> on chlorpyrifos, diazinon, and malathion. EPA will continue to work to protect farmworkers, endangered species and their habitats, and the nation's most vulnerable populations (including children) through its ongoing registration review and ESA processes for chlorpyrifos uses.

2024 Update

On February 5, 2024, the U.S. Environmental Protection Agency issued a Federal Register Notice to amend the Code of Federal Regulations to reflect the November 2, 2023 Eighth Circuit Court of Appeals' ruling. The Eighth Circuit Court officially issued its

mandate for this decision on December 28, 2023, which immediately reinstated the chlorpyrifos tolerances.

EPA is also engaged in discussions with the registrants to further reduce exposures in specific geographic locations and at specific application rates associated with these 11 uses of chlorpyrifos to address safety of the tolerances.

At this time, final cancellation orders, including their terms for existing stocks of products subject to those cancellation orders and related return programs for chlorpyrifos products, remain in place unless and until amended by EPA.

Registration Review Schedule

Chlorpyrifos is still under evaluation in registration review, a program that re-evaluates all pesticides on a 15-year cycle. Registration review ensures pesticides will not cause unreasonable adverse effects when used according to label directions and precautions, and that there is a reasonable certainty of no harm from dietary and residential exposure. All documents related to the registration review can be located in the registration review docket EPA-HQ-OPP-2008-0850 [↗](https://www.regulations.gov/docket/epa-hq-opp-2008-0850) <https://www.regulations.gov/docket/epa-hq-opp-2008-0850> at www.regulations.gov [↗](https://www.regulations.gov) <https://www.regulations.gov>.

EPA will continue to evaluate the remaining chlorpyrifos uses as part of the ongoing registration review for chlorpyrifos. Anticipated milestones in the completion of the chlorpyrifos registration review may include:

- Responding to comments in a document that addresses comments on the PID, the risk assessments, and benefits assessments;
- Developing an interim decision <https://epa.gov/pesticide-reevaluation/registration-review-process#decision> that incorporates the developments since the PID; and
- Evaluating possible endocrine effects associated with the use of chlorpyrifos in the Endocrine Disruptor Screening Program (EDSP).

EPA Action under the Endangered Species Act (ESA)

On Jan. 18, 2017, as part of the registration review process and to meet its obligation under Section 7 of the ESA, EPA issued nationwide biological evaluations (BEs) on chlorpyrifos, diazinon, and malathion to assess risks to threatened and endangered (listed) species from registered uses of these organophosphate pesticides. EPA also initiated formal consultation with the U.S. Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS) (together, the Services) based on the BE conclusions that these pesticides may affect certain listed species and/or their designated critical habitats.

In 2019, EPA reinitiated formal consultation on these pesticide products to consider new information that was not available when NMFS issued its final biological opinion (BiOp). As part of the reinitiated consultation, EPA and NMFS provided opportunities for public and stakeholder engagement, including an opportunity for pesticide registrants to submit additional information and inform EPA and NMFS of pending changes to product labeling. EPA also supplied additional pesticide usage data to inform NMFS's analysis.

In March 2022 <https://epa.gov/pesticides/epa-posts-draft-revised-biological-opinion-malathion-chlorpyrifos-and-diazinon-public>, EPA released NMFS's draft revised BiOp for malathion, chlorpyrifos and diazinon for public comment, specifically requesting input on potential mitigation measures. The draft revised BiOp [↗](https://www.regulations.gov/document/epa-hq-opp-2022-0172-0001) <https://www.regulations.gov/document/epa-hq-opp-2022-0172-0001> identified species that could be jeopardized by how malathion, chlorpyrifos and diazinon were used before this consultation process.

However, during the consultation process, NMFS, EPA, the U.S. Department of Agriculture, and pesticide registrants worked together to identify mitigation measures to address potential effects to listed species. Registrants involved in the consultation agreed to implement these measures by modifying their product labels. To help inform the final BiOp, EPA provided NMFS with the comments received on the draft BiOp and a summary of the comments.

In the final BiOp [↗](https://www.fisheries.noaa.gov/national/consultations/pesticide-consultations#information-on-pesticide-consultations) <https://www.fisheries.noaa.gov/national/consultations/pesticide-consultations#information-on-pesticide-consultations>, NMFS considered the agreed-upon mitigation measures and determined that, once implemented, they will reduce the potential

effects of malathion, chlorpyrifos and diazinon products, and will avoid jeopardy to listed species and adverse modification of designated critical habitat. The NMFS final biological opinion was completed and published on June 30, 2022.

EPA has issued letters to the registrants of chlorpyrifos requesting registrants to take action to implement these mitigation measures as applicable to their products. EPA is reviewing those amended labels.

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