April 9th, 2026

Administrator Troutman
U.S. Environmental Protection Agency
Office of Pollution Prevention and Toxics
1200 Pennsylvania Avenue NW
Washington, DC 20460

Dear Administrator Troutman:

I. Introduction and Request

My name is K. Shea, and I am a Master of Public Health student at the George Washington University Milken Institute School of Public Health. I have been a casual recreational fisher my entire life. More recently, my academic work has focused on environmental health risks in subsistence communities and the ways that food- and water-related practices, including fishing, shape human exposures.

My interest in lead fishing tackle as a public health issue crystallized during a recent trip to Missouri. While purchasing tackle, I noticed a Proposition 65 warning on the package and realized that the small weights I had handled since childhood were made of lead. On that same trip, while fishing at a public spring-fed park, I observed anglers biting split-shot weights to crimp them, handling lures and sinkers, and then eating or touching their mouths without washing their hands. Strands of line with attached tackle hung from trees along the river, within easy reach of children. When I asked others whether they knew the weights were lead, most said they did not. The absence of handwashing facilities, combined with widespread unawareness that these products contain lead, raised serious questions for me about cumulative exposure, especially for children who accompany adults on fishing trips.

As I researched the topic, I became increasingly concerned. While some states have adopted partial restrictions on lead tackle and consumer warnings, the regulatory picture is patchwork, and anglers often travel across state lines without realizing that they may bring lead tackle into jurisdictions that restrict its use. Education and voluntary measures alone do not appear to be sufficient to prevent exposure in this mobile and largely informal user population.

Pursuant to Section 4 of the Toxic Substances Control Act (TSCA), 15 U.S.C. § 2603, I therefore respectfully petition the Environmental Protection Agency (EPA) to require manufacturers and importers of lead used in recreational fishing tackle (including sinkers, jigs, and other terminal tackle) to conduct and fund testing necessary to determine whether the conditions of such use present an unreasonable risk of injury to human health, particularly for children and other vulnerable populations.

II. Background and Prior EPA Actions

Lead is a highly toxic, cumulative neurotoxin that can cause irreversible neurological, developmental, renal, cardiovascular, and reproductive harm, with no known safe level of exposure for children (Centers for Disease Control and Prevention [CDC], 2025; World Health Organization [WHO], 2024). More than half of U.S. children under age six already have detectable blood lead levels (Hauptman, 2021). These background burdens mean additional exposures from recreational activities, including fishing, may contribute to cumulative risk.

In 2010 and 2011, environmental organizations petitioned EPA under TSCA Section 6 to regulate or ban lead fishing tackle, focusing primarily on the impacts of ingested tackle on wildlife, especially common loons (Center for Biological Diversity, 2011). EPA denied those petitions, concluding that petitioners had not demonstrated that lead fishing tackle presented an "unreasonable risk" on a nationwide basis and emphasizing the variability of ecological risk by region and the existence of some state-level actions (U.S. Environmental Protection Agency [EPA], 2012). In its response, EPA expressly noted that the evidence did not meet the Section 6 standard but did not conclude that there was no risk (EPA, 2012).

Importantly, those petitions were framed around wildlife impacts; EPA did not comprehensively evaluate human health risks, particularly through hand-to-mouth exposure pathways for anglers and children. Since 2010, an emerging body of scientific evidence has identified plausible and, in some cases, documented human exposure and health risks associated with handling, biting, and home manufacturing of lead fishing tackle (Grade, 2019).

III. Legal Basis for a Section 4 Testing Rule

Under TSCA Section 4, EPA shall require testing when existing information is "insufficient to permit a reasoned evaluation of the health and environmental effects" of a chemical and "testing is necessary" to develop such information, and where the chemical is or may be produced or used in substantial quantities or there is or may be significant or substantial human exposure (15 U.S.C. § 2603(a)). Section 4 thus requires a significantly lower evidentiary showing than Section 6; the petitioner need not prove that an unreasonable risk already exists, but rather that critical data are lacking and necessary for risk evaluation.

Lead in recreational fishing tackle clearly meets TSCA's "substantial production" and "substantial human exposure" criteria. Millions of anglers in the United States handle lead tackle every year, and lead weights are widely sold in retail and online markets (Grade, 2019; Minnesota Pollution Control Agency, 2023). Children may be directly exposed when present during fishing activities, when tackle is stored in the home, or when lead is melted to make sinkers in residential settings (Anticona, 2012; Mathee, 2013).

At the same time, there is no U.S. national epidemiologic study that directly measures blood lead changes in anglers or children associated with handling or incidental ingestion of lead tackle, nor any systematic federal data on home sinker casting practices and resulting BLLs. As

described below, existing studies are suggestive and in some cases alarming, but they are geographically limited, small in sample size, or focused outside the United States. This is precisely the situation TSCA Section 4 was designed to address.

IV. Emerging Evidence of Hand-to-Mouth Exposure from Lead Tackle

A. Direct Measurement of Hand-to-Mouth Transfer

Until recently, there were no empirical data on the efficiency with which lead from fishing tackle transfers from skin to mouth. Sahmel (2015) conducted the first quantitative hand-to-mouth transfer study using commercially available, 100% lead fishing sinkers. Six adult volunteers handled lead sinkers for approximately 15 seconds and then pressed their fingertips into their own saliva to simulate a hand-to-mouth contact. The authors reported a mean skin-to-saliva transfer efficiency of 24% (range 12–34%), meaning nearly one-quarter of the lead present on fingertips was transferred in a single mouth contact (Sahmel, 2015).

This study demonstrates that hand-to-mouth transfer is not hypothetical; it is measurable and substantial under realistic handling conditions. However, the study's sample size was small, and it evaluated transfer under controlled laboratory conditions. Additional testing is needed to quantify transfer over longer fishing sessions, under variable environmental conditions (wet hands, sunscreen, dirt), and across different tackle designs, including split-shot sinkers that anglers commonly bite to crimp onto fishing line (Grade, 2019).

California's Office of Environmental Health Hazard Assessment (OEHHA) recognized the relevance of this pathway when it issued a 2008 Proposition 65 interpretive guideline specifically on hand-to-mouth transfer of lead from fishing tackle. Relying on available data at the time, OEHHA adopted a 50% transfer efficiency for direct hand-to-mouth contacts and developed equations for estimating daily lead intake from handling tackle (OEHHA, 2008). These guidelines show that at least one state has formally concluded that hand-to-mouth exposure from fishing tackle is significant enough to require quantitative assessment and warnings under state law.

In addition, the Institute of Occupational Medicine, an independent occupational and environmental health research charity based in the United Kingdom, evaluated dermal loading of elemental lead under repeated contacts and found statistically significant increases in surface loading with the number of contacts (Sleeuwenhoek, 2006). More recently, a Johns Hopkins–affiliated study on metallic lead transfer reported that individual skin hydration did not reliably reduce lead loading, indicating that standard dermal assumptions may underestimate exposure for some users (Sahmel, 2022). Together, these studies underline the plausibility of meaningful hand-to-mouth exposures during routine fishing.

B. Pediatric Case Reports and Poison Control Experience

Multiple pediatric case reports document acute lead poisoning following ingestion of a single lead fishing sinker. Cole (2010) described a four-year-old boy whose BLL reached 65 µg/dL

within one day of swallowing a single sinker, requiring chelation therapy despite no prior known lead exposure. Gupta (2021) reported a five-year-old with elevated BLL despite urgent endoscopic removal of an ingested sinker. These cases demonstrate that even a single small tackle item, which may be left within reach in homes or boats, can create life-threatening exposures in children.

Poison control data, while not systematically broken out for fishing sinkers alone, reinforce the scope of the problem. Grade (2019) note that in 2016 there were 2,412 single-exposure lead poisoning cases reported to U.S. poison control centers, with ingested small lead objects (including fishing weights) among the common sources. They emphasize that poison control calls are likely an undercount of total incidents because not all caregivers contact poison centers when a child ingests a sinker.

The EPA itself, in archived educational materials, has acknowledged that home manufacture of lead sinkers exposes children via lead-contaminated dust and fumes; crawling infants and toddlers are particularly at risk because lead settles on floors and objects that then enter the mouth through normal hand-to-mouth behavior (EPA, 2009). State public health agencies have issued similar warnings about home sinker casting and the importance of washing hands after handling lead tackle.

C. Community-Level Evidence from Fishing Communities

Epidemiologic studies from subsistence fishing communities outside the United States provide further evidence that fishing-related lead practices can elevate children's BLLs. Anticona (2012) studied 346 children in indigenous communities in the Peruvian Amazon and found that playing with and chewing lead scraps used to make fishing sinkers were among the strongest predictors of elevated BLLs; 27.4% of children had BLLs above 10 µg/dL. Mathee (2013) reported mean BLLs of 6.87 µg/dL among young schoolchildren in South African subsistence fishing communities where lead was melted at home to make sinkers; 13% had BLLs above 10 µg/dL.

Although these populations differ from U.S. recreational anglers, the behavioral pathways (e.g., biting lead to shape sinkers, melting lead at home, and children handling tackle) are similar to practices documented among anglers in the United States (Grade, 2019). These studies show that when such behaviors are common, children's BLLs can rise to levels associated with measurable neurodevelopmental harm.

Taken together, these studies already provide strong evidence that lead fishing tackle contributes to preventable human exposure and that children may be harmed at currently prevailing exposure levels. In other words, the emerging literature supports concern about current use; it does not excuse EPA's failure to deploy its full range of regulatory tools. This petition therefore should not be read as suggesting that more data are needed before any protective action is justified. Rather, in the interest of using TSCA comprehensively, it asks EPA to use its Section 4 authority to complement, not delay, risk management by generating the

specific human health data that EPA will ultimately rely on in any Section 6 evaluation of lead tackle.

V. Data Gaps Demonstrating the Need for Testing

Despite this growing body of evidence, substantial data gaps remain that prevent a "reasoned evaluation" of the health risks of lead in recreational fishing tackle under TSCA:

1. **Lack of U.S. angler exposure studies**. No published study has measured BLLs in U.S. recreational anglers before and after typical fishing sessions while tracking hand-to-mouth behavior, frequency of split-shot biting, and hygiene practices (e.g., handwashing before eating). The only quantitative hand-to-mouth transfer study (Sahmel, 2015) used six adult volunteers in a laboratory setting.

2. **Absence of focused BLL studies in U.S. children in angling households**. There is no national or regional study that specifically evaluates BLLs in children who live in households where lead tackle is stored or where home sinker casting occurs, controlling for other lead sources. Existing community-level studies from Peru and South Africa cannot be assumed to represent U.S. exposure patterns, but they demonstrate that fishing-related practices can be dominant exposure sources (Anticona, 2012; Mathee, 2013).

3. **Limited behavioral data**. There are few systematically collected data on how often U.S. anglers bite split-shot sinkers, how frequently hands contact the mouth during fishing, and how often hands are washed before handling food or beverages during fishing trips. Without these inputs, exposure models rely on unvalidated assumptions.

4. **Unintegrated regulatory modeling**. The European Chemicals Agency's Risk Assessment Committee has concluded that lead in fishing tackle poses risks that are not adequately controlled and has supported EU-wide restrictions, including based on modeled dermal and oral exposure (European Chemicals Agency, 2022). However, those models use default oral uptake fractions that may not reflect the higher empirical hand-to-mouth transfer efficiencies measured by Sahmel (2015). EPA has not conducted a comparable, transparent quantitative risk assessment for U.S. anglers.

5. **Incomplete health outcome characterization**. Much of the clinical literature focuses on acute poisoning from ingested sinkers at very high BLLs. There is relatively little information on the frequency and distribution of moderate BLL elevations (e.g., 3.5–10 µg/dL) tied to routine handling of lead tackle. Given the consensus that no safe level of lead exists for children, understanding the contribution of fishing tackle to these moderate elevations is essential (AAP COEH, 2016; CDC, 2025).

These gaps collectively satisfy TSCA Section 4's threshold: existing information is insufficient for EPA to reasonably evaluate the health risks of lead in recreational fishing tackle, and additional testing is necessary and appropriate.

VI. Requested Testing and Study Design

To fill these gaps, the petition requests that EPA, under TSCA Section 4, issue test orders requiring manufacturers and importers of lead used in recreational fishing tackle to develop and submit:

1. Hand-to-Mouth Transfer Studies for Recreational Use Conditions
    a. Controlled laboratory and field studies quantifying hand-to-mouth transfer of lead from representative tackle types (e.g., bagged sinkers, split shot, jig heads) under realistic fishing conditions (wet/dry hands, sunscreen, dirt, varying contact times and repetition).
    b. Studies should include adults and older adolescents, with attention to practices such as biting split-shot sinkers.
    c. Outcomes: surface loading on fingers and palms, transfer efficiency to saliva/food, and modeled daily oral intake.
2. Prospective Blood Lead Studies in Anglers and Household Members
    a. Prospective cohort studies measuring BLLs in adult and adolescent anglers before and after fishing seasons or repeated trips, compared to matched non-angling controls.
    b. Cross-sectional or longitudinal studies of children in households where lead tackle is stored or where home sinker casting occurs, with detailed questionnaires on housing, paint, water, and other lead sources.
    c. Outcomes: distribution of BLLs, association between tackle-related practices and BLL elevations, and identification of high-risk subgroups.
3. Exposure and Risk Assessment Integrating New Data
    a. Use the above data to develop or refine exposure scenarios for different angler populations (recreational, subsistence, youth programs) and to conduct probabilistic risk assessments of BLL outcomes, particularly in children.
    b. Compare modeled exposures to CDC reference values and current health-based guidance to determine whether conditions of use “present an unreasonable risk” under TSCA.

EPA has clear authority to require such testing under Section 4, and manufacturers and importers of lead tackle are in the best position to generate and bear the cost of the needed data, consistent with TSCA’s allocation of responsibilities.

VII. Public Health Significance

The evidence summarized above shows that lead in recreational fishing tackle is more than a wildlife conservation issue. The combination of:

- demonstrable hand-to-mouth transfer from handling lead sinkers (Sahmel, 2015; OEHHA, 2008),

- documented pediatric poisoning cases from single sinker ingestions (Cole, 2010; Gupta, 2021),
- community-level studies linking fishing-related lead use to elevated BLLs in children (Anticona, 2012; Mathee, 2013),
- and the established conclusion that no safe level of lead exposure exists for children (AAP COEH, 2016; CDC, 2025; WHO, 2024),

together indicate that lead tackle may contribute to an avoidable, but currently unquantified, burden of lead exposure in U.S. families.

Yet EPA has never conducted a comprehensive human health risk evaluation for this use under modern TSCA, and the data necessary to do so have not been generated by industry voluntarily. A Section 4 testing rule would not prejudge the outcome of any future Section 6 risk management decision. It would simply ensure that EPA, states, and the public have the information needed to evaluate whether continued use of lead tackle is compatible with national public health goals.

VIII. Conclusion

For the reasons stated above, I respectfully request that EPA:

1. Determine that existing information on lead used in recreational fishing tackle is insufficient to permit a reasoned evaluation of its health effects under its conditions of use;
2. Determine that there is or may be substantial human exposure, particularly among anglers and children in angling households; and
3. Issue test orders under TSCA Section 4 requiring manufacturers and importers of lead used in recreational fishing tackle to conduct the testing described in Section VI.

Thank you for your consideration of this petition.

Sincerely,

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