Wisconsin Legislative Council
INFORMATION MEMORANDUM

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REGULATION OF PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS)

Per- and polyfluoroalkyl substances (PFAS), a wide-ranging group of manmade chemicals, have garnered significant attention in recent years. While the unique properties of PFAS have led to their use in a range of consumer and industrial products, research has linked various PFAS to adverse health outcomes. Additionally, PFAS are often both mobile in the environment and resistant to degradation, traits that have made PFAS contamination particularly challenging to address. Together, these factors have prompted concerns regarding PFAS in communities across Wisconsin.[1]

At the federal level, the Environmental Protection Agency (EPA) announced a PFAS Strategic Roadmap, which describes the agency's goals and objectives for 2021-2024 and sets timelines for certain agency actions. EPA has subsequently pursued various rulemaking efforts to regulate PFAS, including the development of proposed federal drinking water standards. The agency has also distributed funding provided under the Infrastructure Investment and Jobs Act to assist states in addressing PFAS.

At the state level, legislative and executive branch actions have addressed PFAS contamination in recent years. In June 2023, Senators Wimberger and Cowles and Representatives Mursau and Swearingen introduced legislation relating to PFAS contamination in Wisconsin. Among a number of other provisions, the legislation authorizes a grant program to assist local units of government to address PFAS contamination.[2] Past efforts included a Speaker's Task Force on Water Quality to study the issue, among others, during the 2019 legislative session.

In the executive branch, Governor Evers declared 2019 the "Year of Clean Drinking Water" and issued an executive order creating the Wisconsin PFAS Action Council ("WisPAC"). In December 2020, WisPAC issued the Wisconsin PFAS Action Plan, which recommends a list of action items relating to contamination. As described below, the Department of Natural Resources (DNR) has also addressed PFAS through various rulemaking and remediation actions in recent years.

PFAS USES, CLASSIFICATION, AND HEALTH IMPACTS

Due to their structure and chemical composition, PFAS often exhibit heat, oil, and water resistant properties that have led to their use in a variety of consumer and industrial products. For instance, PFAS are used in certain finishes and protective coatings, including coatings on certain non-stick cookware as well as finishes on stain- and water-resistant fabrics. While these

[1] Sites in which the state is investigating PFAS contamination can be seen on an interactive data viewer developed by DNR, available at: https://experience.arcgis.com/experience/d4d131e169ba428384c5ac85c858bd0c.

[2] Although the legislation does not appropriate any funds, the Joint Committee on Finance (JCF) approved a motion to create a PFAS trust fund within the 2023-25 Biennial Budget Act.

and other consumer applications of PFAS have raised concerns, the use of PFAS in firefighting foams has also drawn particular attention. This is largely due to the fact that, unlike PFAS within consumer products, PFAS-containing firefighting foams have often been discharged directly to the environment. In turn, these discharges may contaminate groundwater and surface waters, particularly near sites where the foams are used extensively (such as airports).

While there are thousands of unique PFAS compounds, PFAS are often classified as "long-chain" or "short chain," based on their number of carbon atoms.[3] "Long-chain" PFAS, a group consisting of certain compounds with at least six or seven carbon atoms, generate particular concern due to their greater potential to bioaccumulate in humans and other organisms.[4] In contrast, "short-chain" PFAS (certain compounds with fewer than six or seven carbon atoms) do not accumulate as readily within the human body. However, short-chain PFAS can be more mobile and persistent in the environment, facilitating the spread of contamination.[5]

A growing body of scientific research has linked the accumulation of PFAS in the human body with various health effects. These effects include increased risk of pre-eclampsia and other problems during pregnancy, decreased fertility, low infant birth weight, increased cholesterol levels, and increased risk of some cancers. Much of this research has focused on the effects of PFOA and PFOS. However, potential health effects have been identified for numerous other PFAS, including substances used as replacements for PFOA and PFOS.[6]

STATE REGULATION

Wisconsin regulates PFAS under several sources of law, including the state's environmental remediation law, state and federal drinking and surface water laws, the state groundwater protection law, and a new state law specific to firefighting foam. Under several of those sources of law, the state sets and enforces water quality standards for PFAS, with a goal of preventing new contamination. In contrast, the state's environmental remediation law addresses cleanup of contamination that has already occurred.

Wisconsin's Remediation Law

Wisconsin's remediation law (part of which is generally referred to as the "spill law" or "spills law"), clarifies liability and regulatory procedures for addressing environmental contamination in the state.

General Framework

Under the remediation law, in addition to a person who causes the discharge of a hazardous substance, a person who "possesses or controls" a discharged hazardous substance, including the owner of land on which a hazardous substance is found, is generally responsible for

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[3] Further information on the classification of PFAS is available at Interstate Technology and Regulatory Council, *PFAS — Per- and Polyfluoroalkyl Substances: 2.2- Chemistry, Terminology, and Acronyms*. (June 2022), https://pfas-1.itrcweb.org/2-2-chemistry-terminology-and-acronyms/.

[4] Perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS) are two of the most widely studied long-chain PFAS. Major U.S. manufacturers have largely voluntarily phased out the production of these chemicals. However, these chemicals continue to present challenges due to their persistence in both the human body and the environment.

[5] Li, F. *et al*. Short-chain Per- and Polyfluoroalkyl Substances in Aquatic Systems: Occurrence, Impacts and Treatment. *Chemical Engineering Journal*. 2020, *380*, 122506. DOI: 10.1016/j.cej.2019.122506.

[6] The EPA's website provides literature searches of toxicity studies available for 31 specific PFAS.

remediation, regardless of whether the person caused the contamination.[7] In practice, DNR may initiate formal remediation requirements by issuing what is known as a "responsible party letter" to a person subject to the environmental remediation requirements. [s. 292.11 (3), Stats.]

To address environmental contamination, DNR may: (1) order certain preventive measures to be taken by any person possessing or controlling a hazardous substance; (2) take actions to directly contain, remove, or dispose of a hazardous substance (and obtain reimbursement from the responsible party for those efforts); (3) issue emergency orders to require responsible parties to act; and (4) enter into agreements containing schedules for conducting nonemergency actions. [s. 292.11 (4) and (7), Stats.]

The law also directly imposes certain requirements on persons who cause, possess, or control a hazardous substance. Specifically, such persons must notify DNR of contamination "immediately." [s. 292.11 (2) (a), Stats.] Such notifications trigger various remediation requirements and procedures. For example, DNR may conduct monitoring and investigations, and may also require a landowner to take preventive measures. [ss. 292.01 (15), 292.11 (4), and 292.31 (1) (b) 2., Stats.]

For purposes of the remediation law, "hazardous substance" is defined to mean "any substance or combination of substances including any waste of a solid, semisolid, liquid or gaseous form which may cause or significantly contribute to an increase in mortality or an increase in serious irreversible or incapacitating reversible illness or which may pose a substantial present or potential hazard to human health or the environment because of its quantity, concentration or physical, chemical or infectious characteristics." [s. 292.01 (5), Stats.] What constitutes a "hazardous substance" sufficient to trigger remediation requirements is situationally dependent. DNR determines whether a substance is a "hazardous substance" for purposes of the remediation law on a case-specific basis, based on the risk of harm to health and the environment at a particular site. The remediation law does not provide specific, numeric thresholds that apply uniformly to every site.

However, once liability is established, the remediation law incorporates existing environmental standards from the state's groundwater and surface water laws in actions to remediate contamination at a particular site. Specifically, DNR's rules require remediation plans to incorporate preventive action limits established under the groundwater protection law, if any exist. If no such standard is established, DNR may require responsible parties to take "any necessary actions" to protect human health and prevent groundwater and surface water contamination. [s. NR 722.09 (2) (b), Wis. Adm. Code.]

With respect to surface water, DNR's rules require remediation plans to ensure that discharges to surface waters will not exceed surface water standards. At sites in close proximity to surface water or wetlands, remediation must also include "active remedial actions" to prevent discharges that exceed those standards, to the extent practicable. [s. NR 722.09 (2) (c), Wis. Adm. Code.]

There is no analogous requirement to incorporate drinking water standards in remediation orders. However, drinking water standards can indirectly impact remediation requirements. For example, in a situation where the discharge of a hazardous substance affects either a municipal

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[7] Several exceptions apply. For example, the law provides a partial exemption for law enforcement officers and fire departments, and a unit of local government may be exempt from general liability if the relevant property was acquired in one of several specified ways. [s. 292.11 (9) (b) and (e), Stats.] In addition, a person may voluntarily apply to obtain an exemption from general liability under the spill law by cooperating with DNR on remediation efforts through the voluntary program described below.

water supply or private well, a property owner may be required to remediate harmful effects on drinking water sources (such as by temporarily providing bottled water to affected landowners).[8]

Actions to Address PFAS Contamination Under the Remediation Law

DNR has taken a number of actions under the remediation law to address remediation of PFAS contamination. For example, DNR has undertaken remediation actions relating to PFAS at Truax Field, Fort McCoy, Volk Field, and various industrial sites. Remediation efforts are also pending at several sites in or near the City of Marinette, where investigations have shown PFAS contamination stemming from the testing or use of firefighting foam.[9] Documentation, including interim action plans and long-term management plans, and status reports for pending site investigations are available on DNR's Bureau for Remediation and Redevelopment Tracking System (BRRTS) database.

More broadly, in 2018, DNR issued an "interim decision," which applied to participants in the Voluntary Party Liability Exemption (VPLE) program[10] who had not yet obtained a certificate of completion (COC) for a site. For those sites, the interim decision concluded that a COC would provide an exemption from liability only for substances that had been investigated and remediated at the site, and not for other hazardous substances that may be identified in the future. That interim decision was prompted by concerns regarding PFAS contamination.

Recent Litigation Challenging DNR's Authority Under the Remediation Law

In February 2021, Wisconsin Manufacturers and Commerce and Leather Rich, Inc., filed a case against DNR in the Waukesha County Circuit Court, seeking a declaratory judgment. In their complaint, the plaintiffs argued, in part, that DNR's regulation of PFAS and other "emerging contaminants" as hazardous substances under the remediation law is unlawful because the regulation of those substances constitutes a rule that has not been properly promulgated. Similarly, the plaintiffs also argued that DNR's enforcement of certain PFAS thresholds under the remediation law is unauthorized, because those thresholds have not been promulgated by rule.

The circuit court judge ruled in favor of the plaintiffs in April 2022. The court's order states that DNR's policy of regulating PFAS and other emerging contaminants as hazardous substances under the remediation law, as well as DNR's enforcement of any numeric standard, requirement, or threshold for such substances and DNR's "interim decision" policy, described above, are "unlawfully adopted rules" and are therefore "invalid and unenforceable."

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[8] Additionally, drinking water standards may form the basis of standards established under state groundwater protection law. In turn, as noted previously, preventive action limits may be incorporated into remediation plans under the remediation law.

[9] A summary of actions relating to the sites is available on DNR's website.

[10] A person who satisfies requirements through the VPLE program is exempt from the general liability imposed under the environmental remediation law. [s. 292.15, Stats.]

DNR appealed the circuit court's ruling and the order is currently stayed while the appeal is pending before the Wisconsin Court of Appeals.[11] Parties filed briefs in late 2022, and the case is now awaiting assignment for oral argument.[12]

Water Quality Standards

Various state and federal rulemaking efforts have sought to establish water quality standards for certain PFAS compounds. As described below, these efforts have targeted PFAS in differing types of water and are carried out under a range of state and federal laws. Currently, state water quality standards are in effect for: (1) drinking water; and (2) surface water. Similarly, DNR has undertaken various efforts to regulate PFAS under the state's groundwater protection law. To date, federal water quality standards for PFAS have not yet been finalized.

Development of Groundwater Standards

Under Wisconsin law, groundwater protection standards are developed by DNR, with assistance provided by various other state agencies. The process begins with the identification of substances that may affect groundwater quality. Potential substances are submitted to the DNR by state regulatory agencies, though they may also be submitted by any other person. [s. 160.05 (1) and (2), Stats.] DNR then categorizes each substance, generally on the basis of whether there is a "federal number" for a substance, and prioritizes substances within each category. [s. 160.05 (3) and (4), Stats.] Additionally, DNR designates which substances are of public health concern and which are of public welfare concern. [s. 160.05 (6), Stats.]

DNR and the Department of Health Services (DHS) share responsibility for establishing standards for substances of public health concern. For those substances, as described below, DHS recommends a standard, and DNR then promulgates that recommended standard as a rule. The agencies are required to have a memorandum of understanding regarding the procedures and responsibilities of each agency in establishing enforcement standards, including the standards DNR uses to designate substances of public health concern. [s. 160.07 (1), Stats.]

Groundwater protection standards are established on a two-tiered basis—both an "enforcement standard" and a "preventive action limit" are determined for each substance. An "enforcement standard" is generally the concentration of a substance that defines whether a violation has occurred.[13] A "preventive action limit" is a lesser concentration of a substance (generally, a percentage of the enforcement standard calculated under s. 160.15, Stats.) that functions as a warning of groundwater contamination before a violation has occurred.

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[11] The circuit court initially granted DNR's motion to stay the ruling in conjunction with issuing the ruling. The circuit court then extended the stay in June 2022. In September 2022, the venue for the appeal was transferred to Wisconsin Court of Appeals – District II.

[12] In addition to the underlying questions in the case, questions relating to mootness are expected to be raised on appeal. Mootness may arise as an issue because DNR has promulgated rules establishing drinking and surface water enforcement standards since the circuit court's decision was issued. As mentioned, those standards are indirectly incorporated in enforcement actions under the remediation law.

[13] State law generally aligns groundwater enforcement standards with the "federal number" for a particular contaminant (e.g., a federal drinking water standard or health advisory level). If a federal number does not exist and the state has not established its own drinking water standard, DHS must develop an enforcement standard following a procedure established in statute. DHS may also recommend a standard that deviates from a federal number if certain requirements are met. [ss. 160.07 (4) and 160.13, Stats.]

In February 2022, the Natural Resources Board (NRB) voted to table a proposed rule establishing a groundwater standard for certain PFAS.[14] However, in December 2022, NRB again approved a scope statement for new rulemaking to establish groundwater standards for certain PFAS, including the substances that were to be regulated under the prior proposal.

Drinking Water Standards

The safety of public drinking water is largely regulated through a framework established by the federal Safe Drinking Water Act (SDWA).[15] Under this framework, the EPA establishes drinking water standards for various contaminants, often consisting of maximum contaminant levels (MCLs).[16] In turn, states generally assume oversight and enforcement responsibility for implementing these standards. To assume this responsibility (often referred to as primacy), states must adopt regulations that are at least as stringent as those under federal law.

Under the SDWA, public drinking water systems must monitor their water supplies to ensure compliance with drinking water standards. If a standard is violated, a public water system must take various steps to return to compliance. These may include implementing new treatment measures or abandoning use of a contaminated water supply. Additionally, a public water system is generally required to notify customers of a violation within 24 hours if the violation has the potential to cause serious health effects. [42 U.S.C. s. 300g-3.]

The EPA has not yet promulgated enforceable drinking water standards for PFAS. However, in March 2023, the agency proposed a rule to establish MCLs for six PFAS. The agency expects to promulgate a final rule by the end of 2023, and water systems would generally be required to come into compliance within three years of the rule's promulgation.[17] With respect to PFOA and PFOS, the agency has proposed MCLs of 4 ppt for each substance, individually.

In lieu of federal PFAS drinking water standards, a DNR rule establishing MCLs for PFOA and PFOS took effect in August 2022.[18] This rule established a standard of 70 ppt for PFOA and PFOS, combined, based upon the EPA's 2016 health advisory level for these substances.[19]

Surface Water Standards

Similar to the regulation of drinking water, surface water quality is regulated under a framework combining federal and state law. The federal Clean Water Act requires the EPA to develop national water quality criteria, while both the act and Wisconsin law require DNR to establish

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[14] The proposed rulemaking would have established a groundwater enforcement standard of 20 parts per trillion (ppt) for PFOA and PFOS, combined.

[15] The SDWA regulates both community water systems (e.g., municipal water systems), as well as certain "non-community water systems" (e.g., schools or campgrounds with their own water supply). Further information on the SDWA is available at Congressional Research Service, *Safe Drinking Water Act (SDWA): A Summary of the Act and Its Major Requirements*, (July 1, 2021), https://crsreports.congress.gov/product/pdf/RL/RL31243.

[16] For certain contaminants, EPA establishes a required treatment technique rather than a numerical MCL. This approach is generally used when an MCL would not be feasible (for example, if laboratories cannot adequately measure a particular contaminate).

[17] Further information on the proposed rule is available at https://www.epa.gov/sdwa/and-polyfluoroalkyl-substances-pfas.

[18] Clearinghouse Rule 21-088.

[19] When developing the current PFAS drinking water standard, DNR proposed a standard of 20 ppt for PFOA and PFOS, combined. However, the proposed standard was amended by the NRB in a February 2022 meeting. In 2022, the EPA released revised interim health advisory levels of 0.004 ppt and 0.02 ppt for PFOA and PFOS, respectively.

state-level water quality standards for surface waters. The state standards include both designated uses for particular waterbodies and state-level criteria required to maintain those uses.[20] [s. 281.15 (1), Stats.] To date, the EPA has not yet established surface water quality criteria for any PFAS.[21]

DNR has established surface water quality standards for two PFAS—PFOA and PFOS.[22] The standards, which took effect in August 2022, provide the following criteria for Wisconsin surface waters: (1) an 8 ppt limit for PFOS in surface waters that support fish or have downstream waters that support fish; (2) a 95 ppt limit for PFOA in surface waters that are not classified as public water supplies; and (3) a 20 ppt limit for PFOA in surface waters that are classified as public water supplies. [s. NR 102.04 (8) (d), Wis. Adm. Code.]

Surface water quality standards are incorporated directly in Wisconsin pollutant discharge elimination system (WPDES) permits.[23] A WPDES permit includes a compliance schedule and sets forth specific water quality-based[24] or technology-based requirements that a permittee must satisfy. [ss. 283.31 (3) and (4) and 283.55, Stats.] As mentioned above, surface water quality standards are also incorporated in remediation plans under the remediation law.

Landspreading Municipal Biosolids

Biosolids, a byproduct of the wastewater treatment process, are often spread on agricultural lands as fertilizer due to their high nutrient and organic matter content. However, biosolids may contain PFAS resulting from contamination within the wastewater treated by a particular treatment plant. For that reason, some have expressed concern regarding the role of biosolids landspreading in the spread of PFAS contamination.

Under Wisconsin law, land application (i.e., spreading) of municipal biosolids requires issuance of a WPDES permit. [s. NR 204.05 (1), Wis. Adm. Code.] As described above, DNR issues WPDES permits under authority delegated by the federal Clean Water Act.

For land applications, a WPDES permit application must include specified locational information, to allow DNR to "properly evaluate each land application site." [s. NR 204.06 (6), Wis. Adm. Code.] A WPDES permittee must obtain a specific DNR approval for each site before applying biosolids. [s. NR 204.07 (2), Wis. Adm. Code.]

Because biosolid land application is subject to WPDES permitting, it is also subject to a relatively high degree of public scrutiny. DNR must provide public notice and a 30-day comment period for all WPDES permit applications, and it must conduct a public hearing if

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[20] DNR exercises "delegated authority" to implement federal Clean Water Act requirements. State law requires water quality standards to protect the public interest, including the protection of the public health and welfare and the present and prospective future use of such waters for public and private water systems, propagation of fish and aquatic life and wildlife, domestic and recreational purposes, and agricultural, commercial, industrial and other legitimate uses. DNR must establish criteria that are "no more stringent than reasonably necessary to assure attainment of the designated use for the water bodies in question." [s. 281.15 (1) and (2) (c), Stats.]

[21] See Congressional Research Service, *Regulating PFAS Under the Clean Water Act* (June 28, 2022), https://crsreports.congress.gov/product/pdf/IF/IF12148.

[22] Clearinghouse Rule 21-083.

[23] A WPDES permit is required before a person may make any discharge to a navigable water from a point source. As described below, a WPDES permit is also required for spreading municipal biosolids. [s. NR 204.05 (1), Wis. Adm. Code.] A "point source" is any discernible, confined, and discrete conveyance from which pollutants are or may be discharged. [33 U.S.C. s. 1362 (14).]

[24] Water quality-based effluent limitations may be narrative (describing the characteristics the water should have) or numeric (specifying the maximum concentration of a pollutant).

requested. Among other information, the public notice must include information indicating where the permit application may be viewed on the DNR's website. [s. 283.39, Stats.] The DNR's administrative rules also require a land applier to provide direct notice to the relevant landowner or leaseholder before applying biosolids. [s. NR 204.06 (8) (e), Wis. Adm. Code.]

Substantively, DNR generally may not issue a WPDES permit unless the permit includes a condition ensuring that state groundwater protection standards will be satisfied. [s. 283.31 (3) (f), Stats.] For that reason, groundwater quality monitoring may be required as part of a WPDES permit for the land application of biosolids.

In addition, DNR administrative rules regarding the land application of biosolids include pollutant limits and testing requirements intended to protect groundwater quality. For example, they limit or prohibit the land application of biosolids in some cases, based on land characteristics such as soil permeability or based on the chemical composition of the biosolids. [s. NR 204.07 (3), Wis. Adm. Code.]

DNR rules require wastewater treatment facilities to report and analyze the physical, chemical, and biological characteristics of biosolids on an annual basis as specified in the permit. Among other parameters, the facility may have to test for the presence of certain dangerous metals or toxic substances. Although the promulgated rules do not specifically address testing or monitoring requirements for PFAS and other emerging contaminants, DNR may require testing for any parameter which it determines "may result in detrimental effects to public health or the environment." [s. NR 204.06, Wis. Adm. Code.]

Regulation of Firefighting Foam

PFAS are often used as a component of foams used to combat liquid fires, such as fires resulting from burning fuel. When mixed with water and discharged, these firefighting foams can form a film that spreads across the surface of a liquid fire. This helps extinguish the fire and can prevent re-ignition by depriving the fire of oxygen.

As noted above, PFAS contamination has often been found near areas where firefighting foams have been used extensively, such as areas used for firefighting training and foam testing. Recent legislative enactments have focused on addressing PFAS in firefighting foams, in particular, by regulating the use of such foam and providing funds for collection and disposal.

General Prohibition and Exceptions

State law, created by 2019 Wisconsin Act 101, generally prohibits the use or discharge, including for training purposes, of Class B firefighting foam,[25] if the foam contains intentionally added PFAS. [s. 299.48 (2), Stats.] Two exemptions to that general prohibition allow: (1) the use of such foam as part of an emergency firefighting or fire prevention operation; and (2) the use of such foam for testing purposes, if the testing facility has implemented appropriate containment, treatment, and disposal or storage measures to prevent discharges of the foam to the environment.

Act 101 directed DNR to promulgate administrative rules to implement the act. The Joint Committee for Review of Administrative Rules (JCRAR) partially suspended an emergency rule DNR promulgated to do so. A permanent rule, which incorporates the changes made by JCRAR, is now in effect. [ch. NR 159, Wis. Adm. Code.]

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[25] Class B firefighting foam, also referred to as aqueous film-forming foam, is used to extinguish burning oil, gasoline, and other flammable liquids.

Collection and Disposal Program

The 2021-23 Biennial Budget Act provided an appropriation line within DNR's budget for the collection of firefighting foam. As later authorized by JCF,[26] $1 million could be used for contract costs associated with a collection program. JCF also directed DNR to enter into a memorandum of understanding with the Department of Agriculture, Trade and Consumer Protection (DATCP) to take certain steps to implement the program.

DNR and DATCP negotiated the memorandum of understanding in April 2022. The state then negotiated a contract with North Shore Environmental Construction to complete the collection and disposal work. At a January 2023 hearing before the Senate Committee on Natural Resources and Energy, North Shore Environmental Construction reported that, to date, it had successfully collected foam from 231 out of approximately 800 fire departments in Wisconsin. The company noted that switching to alternative foams is cost prohibitive in some smaller communities.

This information memorandum was prepared by Anna Henning, Principal Attorney, and Benjamin Kranner, Staff Analyst, on June 27, 2023.

[26] The budget act did not directly appropriate any funding for the program, but the budget summary prepared by the Legislative Fiscal Bureau indicated that $1 million of JCF's supplemental appropriation was intended to be used for that purpose. JCF granted DNR's request to JCF for the use of the funds, with specified conditions. For a summary of the relevant motion and vote, see item XII in the minutes for JCF's February 9, 2022, meeting, available at: https://doa.wi.gov/budget/SBO/13.10%20Minutes%202022%2002%2009.pdf.