

REVERSING QUIET DESTRUCTION: FLORIDA'S ATTEMPT TO REGULATE PFAS KNOWN AS FOREVER CHEMICALS

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I. INTRODUCTION

When someone buys a raincoat to prepare for a rainy day or grabs a swig of water from their park's local water fountain, the last thing they are thinking about is how these actions may affect their health. One group of chemicals that permeate our foods, consumer products, and water systems around the United States are called Per- and polyfluorinated substances ("PFAS"), also known as 'forever chemicals.'¹The phrase "forever chemicals" arose because of the stability of the compound.² Unlike some other substances, PFAS "do not naturally degrade" after being released into the environment.³ This is concerning because research has found that PFAS "pose a risk to public health and the environment."⁴

PFAS are one of the larger groups of anthropogenic or synthetic fluorinated organic compounds of chemical contaminants that have been manufactured to resist grease, heat, stains, and water.⁵ "Organic contaminants are carbon based, [much like the carbons

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¹A. Colleen Donald, "Forever Chemicals" in the State of Florida: From Cosmetics to Lagoons, BARRY LAW ENV'TL AND EARTH LAW JOURNAL (Feb. 11, 2023), <https://barryeej.law.blog/2023/02/11/forever-chemicals-in-the-state-of-florida-from-cosmetics-to-lagoons/>.

² *Toxic Chemicals*, SAFER STATES, (Last visited Sep. 24, 2022), <https://www.saferstates.com/toxic-chemicals/pfas/>.

³ *DEP's Efforts to Address PFAS in the Environment*, FLA. DEP'T OF ENV'T PROT., (March 28, 2022, 1:48 PM), https://floridadep.gov/waste/waste-cleanup/content/dep's-efforts-address-pfas-environment_

⁴ *Id.*

⁵ Nikki Delude Roy et al., *Regulatory Challenges Posed by Emerging Contaminants*, 20 NO. 1 A.B.A. WATER RES. COMM. NEWSL. 7 (2018).

found in] organic solvents, pesticides, petroleum-based wastage, timber, and gas or liquid phase volatile compounds.”⁶ Approximately seventy-five percent of waterproof products include PFAS.⁷ Further, PFAS exist in products including but not limited to carpets, clothes, electronics, dental floss, and facial moisturizers.⁸ Studies by health and environmental agencies revealed that considerable amounts of PFAS are toxic and have negative consequences to those exposed.⁹

These revelations prompted federal agencies such as the United States Environmental Protection Agency (“EPA”), and at least twenty three state governments to adopt policies or laws regulating the amount of PFAS in products, prohibiting products that use high levels of PFAS, and setting targets for cleaning up these substances.¹⁰ On June 20, 2022, the State of Florida enacted Section 376.91 of Florida Statutes which sets target cleanup levels of PFAS.¹¹ This note first addresses the risk of using PFAS for people and the effects of PFAS on the economy and the environment of Florida. This note will then address the current state of regulations surrounding PFAS in Florida and in other states. Finally, this note will critique the Statewide Cleanup of Perfluoroalkyl and Polyfluoroalkyl Substances, Section 376.91 of Florida Statutes, and analyze it in comparison to other states’ statutes for its feasibility in preventing damages caused by PFAS.

⁶ Sharma and Negi, *Inorganic Pollutants in Water*, in § 7 *Methods of Inorganic Pollutants Detection in Water*, in SCIENCE DIRECT, 115 -134 (Elsevier 2020); <https://www.sciencedirect.com/topics/earth-and-planetary-sciences/organic-contaminant>.

⁷ Elizabeth Burleson, *Forever Chemicals Timeline*, in §10 *PFAS Public Health and Environmental Dynamics*, in BURLESON INST., PART OF THE U.N. TECH. CTR. & NETWORK §10:3 (Rodgers Env’tl. Law 2d. ed. 2022).

⁸ See Roy, *supra* note 5.

⁹ *DEP’s Efforts to Address PFAS in the Environment*, *supra* note 3.

¹⁰ *Toxic Chemicals*, *supra* note 2.

¹¹ FLA. STAT. § 376.91.

II. THE RISKS OF USING PFAS: WHAT ARE PFAS AND JUST HOW DANGEROUS ARE THEY?

A. *The health effects of PFAS on people and animals*

While PFAS may now be a prominent topic in environmental news, PFAS are not new chemicals. PFAS were first manufactured in the 1940s.¹² PFAS chemical group is vast in that it contains over 6,000 chemicals.¹³ Perfluorooctanoic acid (“PFOA”) and perfluorooctanesulfonic acid (“PFOS”) are the most examined chemicals in the PFAS group.¹⁴ “PFOS is fairly similar to PFOA in that both chemicals contain eight carbons.”¹⁵ These carbons have unyielding chemical bonds.¹⁶ These bonds are largely indestructible because their molecules have difficulty dissolving.¹⁷ Therefore, once PFAS are released into the environment it is nearly impossible to eliminate.¹⁸ After PFAS are released, they contaminate groundwater, surface water, and soil which negatively affects crops and water systems.¹⁹ Two of the most devastating ways that PFAS are released are through manufactured consumer products and through food packaging.²⁰ Because PFAS exists in food packaging, it often moves through the food chain putting people directly at risk of daily exposure to PFAS while shopping for and purchasing their favorite foods.²¹

¹² Leticia M. Diaz & Margaret R. Stewart, “Forever Chemicals”: *Forever Altering The Legal Landscape*, 7 BELMONT L. REV. 308, 311 (2020).

¹³ Erin E. O’Brien, Note, *Reform Needs To Happen Fast: The Importance Of Federal Per- And Polyfluoroalkyl Substance Regulation*, 123 W. VA. L. REV. 233, 237 (2020).

¹⁴ Frederick A. McDonald, Note, *Omnipresent Chemicals: TSCA Preemption in the Wake of PFAS Contamination* 37 PACE ENVTL. L. REV. 139, 143 (2019).

¹⁵ See McDonald, *supra* note 14, at 144.

¹⁶ See Diaz & Stewart, *supra* note 12.

¹⁷ See O’Brien, *supra* note 13, at 235.

¹⁸ *Id.*

¹⁹ See *DEP’s Efforts to Address PFAS in the Environment*, *supra* note 4.

²⁰ See Roy, *supra* note 5.

²¹ See Burleson, *supra* note 7.

Of course, PFAS were created with good intentions: one of “the intended uses of PFAS is to create durability in consumer goods.”²² They have been used to make nonstick cookware, water-repellent clothing, stain resistant fabrics and carpets, some cosmetics, some firefighting foams, and products that resist grease, water, and oil.²³ However, the use of these toxic chemicals can be dangerous for people because once exposed, PFAS bind to the proteins in the blood of humans.²⁴ According to the National Health and Nutrition Examination Survey, the United States Centers for Disease Control and Prevention (“CDC”), and the National Groundwater Association, ninety-five percent of people in the United States have traceable amounts of PFAS in their blood.²⁵ Some government agencies state that the long-term effects of PFAS are undetermined.²⁶ In contrast, other studies suggest that PFAS exposure adversely affects the liver and immune system.²⁷ Additional studies have shown exposure to PFAS causes reproductive issues.²⁸ Also, correlations between animal and human

²² See Donald, *supra* note 1.

²³ Per- and Polyfluoroalkyl Substances (PFAS) and Your Health: What are PFAS?, ATSDR, (last reviewed Nov. 2022), <https://www.atsdr.cdc.gov/pfas/health-effects/overview.html>.

²⁴ Kate Fritz, Note, *Public Pollution/Public Solution: A Framework for City-led Toxic Tort Litigation*, 28 N.Y.U. ENVTL. L.J. 319, 350 (2020).

²⁵ Megan Noonan, *The Doctor Can't See You Yet: Overcoming The “Injury” Barrier To Medical Monitoring Recovery For PFAS Exposure*, 45 Vt. L. REV. 287, 292 (2020).

²⁶ See Diaz & Stewart, *supra* note 12.

²⁷ *An Overview of Perfluoroalkyl and Polyfluoroalkyl Substances and Interim Guidance for Clinicians Responding to Patient Exposure Concerns*, AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY (May 7, 2018), https://www.atsdr.cdc.gov/pfc/docs/pfas_clinician_fact_sheet_508.pdf [<https://perma.cc/3LXQ-VNP7>]; Note 14.

²⁸ Jim Waymer, ‘Forever chemicals’ lurk everywhere Florida looks for them in the Indian River Lagoon, FLORIDA TODAY, (June 7, 2022), <https://www.floridatoday.com/story/news/local/environment/lagoon/2022/06/07/pfas-forever-chemicals-lurk-everywhere-florida-looks-them/7487187001/>.

exposure to PFAS and in the development of rare illnesses are evident and have been the subject of concern in several states.²⁹

One of the most notable cases of PFAS exposure occurred in West Virginia. In 1984, lab tests conducted in Parkersburg, West Virginia on employees who worked for DuPont, a manufacturer of a chemical in the PFAS group, PFOS, revealed that the employees became severely sick, and some pregnant employees gave birth to children with defects after handling PFOS waste without safety measures.³⁰ Years after the initial study on the DuPont employees, researchers found that the livestock in the Parkersburg area began to die prematurely from rare deformities.³¹ Moreover, people within the Parkersburg community who had not worked at the chemical manufacturing company had remnants of PFOS in their blood, and some of them had been diagnosed with rare illnesses such as testicular cancer, kidney cancer, and ulcerative colitis.³² This study helped researchers discover that these chemicals were transferable and dangerous: PFOS traveled far beyond the factory – to the employees and into the surrounding areas of Parkersburg, West Virginia, likely causing its residents to develop rare illnesses.³³

B. PFAS in water

More recently, PFAS have been found in one of the earth's most precious resources, water, and affecting one of the more fragile groups of people, children; PFAS have been found in school water fountains putting children at risk for illnesses.³⁴ On October 29, 2018, PFAS were found in an elementary school's water fountains

²⁹ See Roy, *supra* note 5.

³⁰ See O' Briena, *supra* note 13, at 234.

³¹ See O' Briena, *supra* note 13, at 235.

³² *Id.*

³³ *Id.*

³⁴ Michigan PFAS Action Response Team, *Robinson Elementary School (Grand Haven) Drinking Water Response*, MICHIGAN.GOV, (Last updated May 17, 2019), <https://www.michigan.gov/pfasresponse/drinking-water/statewide-survey/robinson-elementary-school-drinking-water-response>.

in Michigan.³⁵ The Michigan Department of Great Lakes and Energy (“EGLE”) received the results of the water samples from Robinson Elementary School in Grand Haven, Ottawa County.³⁶ The water samples were above “[seventy] parts per trillion (“ppt”) for PFOS + PFOA, [totaling 144ppt].”³⁷ A second sample was collected later that afternoon to confirm the findings.³⁸ In that sample, the total ppt had increased to 171ppt.³⁹ The levels of PFAS found in Robinson Elementary School’s water were double the number of safe levels of PFAS under the EPA’s recommended guidelines. At the time, the EPA recommended that there be no more than [seventy] ppt.⁴⁰ Since then, more research has prompted the EPA to take a stricter approach to PFAS. On June 15, 2022, the EPA drastically revised its guidelines for PFOA and PFOS.⁴¹ “For PFOA, the recommendation is 0.004 part per trillion . . . and for PFOS, 0.02.”⁴²

Children are not the only ones drinking water contaminated by PFAS. In another study, PFAS were found in public drinking water sources.⁴³ Harvard researchers “revealed that public drinking water supplies for six million Americans exceeded the federal safety levels.”⁴⁴ Further, according to the Environmental Working Group (“EWG”), a non-profit organization dedicated to protecting the environment and human health, “PFAS have so far polluted the tap water of at least [sixteen] million people in [thirty-three] states and Puerto Rico, as well as groundwater in at least [thirty-eight]

³⁵ *Id.*

³⁶ *Id.*

³⁷ *Id.*

³⁸ *Id.*

³⁹ *Id.*

⁴⁰ Cheryl Houge, *US EPA Sets Health Advisory Limits for 6 PFAS*, C&EN, (last visited June 15, 2022), <https://cen.acs.org/environment/persistent-pollutants/US-EPA-sets-health-advisory-6-PFAS/100/i22>.

⁴¹ *See* Houge, *supra* note 40.

⁴² *Id.*

⁴³ Jordan Kalman, *When Forever Chemicals Hit Home*, WUFT NEWS & THE UF COLL. OF JOURNALISM & COMM’N, (<https://projects.wuft.org/foreverinflorida/when-forever-chemicals-hit-home/>).

⁴⁴ *Id.*

states.”⁴⁵ Studies like these could have been the catalyst for the influx of filtered water fountains in schools, gyms, other public and private buildings, and at home water-filtration systems.

PFAS have also been found in fish, alligators, and other sea life.⁴⁶ In December 2019 and February 2021, University of Florida researchers found that water samples from the Indian River Lagoon and other samples from nearby locations were contaminated by PFAS, likely from “contaminated soil, sewage, reclaimed water, biosolids, and countless consumer products.”⁴⁷ It found, “[t]he [m]aximum sum of PFAS from [a] single sample [totaled] 265 parts per trillion — 3.78 times EPA’s drinking water health advisory level.”⁴⁸ Even with its strict advisory for human consumption, the EPA is still unsure of how PFAS affect aquatic life. Its website states that “[m]uch work is still needed from a mechanistic perspective to better understand how the different modes of action elicit specific biological responses.”⁴⁹ Although this language is convoluted, it ends with saying that it has drafted “aquatic life ambient water quality criteria” based on its observations of PFOAs and how they affect aquatic organisms.⁵⁰ Which means the EPA, just as it is unsure of how PFAS will have a long-term effect on human life, it is similarly unsure of how PFAS will affect aquatic life, but it is taking precautions.

Given that there have been findings of PFAS in nearly every water source, groundwater, surface water, rivers, and the sea, it is no surprise that “[t]he high mobility of some PFAS in water and uncertainty regarding health effects . . . [that] human exposure

⁴⁵ *Id.*

⁴⁶ *See* Donald, *supra* note 1.

⁴⁷ *See* Waymer, *supra* note 28.

⁴⁸ *Id.*

⁴⁹ *Aquatic Life Criteria - Perfluorooctanoic Acid (PFOA)*, U.S. ENV’T PROT. AGENCY, (last updated July 12, 2022), <https://www.epa.gov/wqc/aquatic-life-criteria-perfluorooctanoic-acid-pfoa>, (last visited Jan. 23, 2023).

⁵⁰ *Id.*

through ingestion of contaminated drinking water is of rising concern around the country.”⁵¹

C. PFAS in consumer products and food packaging

Apart from drinking water and ground water sources, PFAS lurk in other places. Of course, we know by now that PFAS exist in products because, at least a few, were specially manufactured to increase the durability of certain products.⁵² We also know, as mentioned, PFAS were not created to be used or rather to contaminate our water.⁵³ And although PFAS were also never created to be used or rather to contaminate our food, they have done just that.

On February 24, 2022, the U.S. Food and Drug Administration (“FDA”) revealed the results of a diet study which monitored contaminants in foods.⁵⁴ It found that ten of the 532 food samples tested had detectable levels of PFAS.⁵⁵ This may not seem like an alarming amount, and considering the fact that out of 167 samples tested the previous year it only found that three of those samples had detectable levels of PFAS, it would appear that our foods are generally safe from PFAS contamination.⁵⁶ Still, the study did not collect samples from areas known to be contaminated by PFAS. The samples the FDA found to be contaminated were primarily in seafood.⁵⁷ This is to be expected due to findings of PFAS in various water sources and the EPA’s specific advisory

⁵¹ See *DEP’s Efforts to Address PFAS in the Environment*, *supra* note 3.

⁵² See Donald, *supra* note 1.

⁵³ *Id.*

⁵⁴ *Total Diet Study*, U.S. FOOD & DRUG ADMIN., (last updated June 3, 2021), <https://www.fda.gov/food/science-research-food/total-diet-study>, (last visited Dec. 18, 2022).

⁵⁵ See *Total Diet Study*, *supra* note 54.

⁵⁶ *FDA Shares Results of PFAS Testing in Seafood*, U.S. FOOD & DRUG ADMIN., (last updated July 6, 2022), <https://www.fda.gov/food/cfsan-constituent-updates/fda-shares-results-pfas-testing-seafood>, (last visited Dec. 18, 2022).

⁵⁷ *Id.*

warning: people should avoid eating fish from waterways impacted by PFAS.⁵⁸

There is comfort in the fact that the FDA can measure PFAS in our food (and other governmental bodies can measure PFAS in our water) so that monitoring efforts may be employed. In contrast to the measurability of PFAS in our food and water, PFAS in cosmetic products cannot be measured.⁵⁹ The FDA cannot determine the levels of PFAS in cosmetic products because “[n]ot all PFAS that may be found in cosmetics can be readily measured, [and] because the specific ‘fingerprint’ or analytical standard of the chemical compound may not be available, [it makes] their detection and quantitation challenging.”⁶⁰ Nevertheless, like the EPA, the FDA recognizes that “[e]xposure to certain types PFAS have been linked to serious health effects, including but not limited to . . . decreases in immune response, changes in liver function, and increases in certain types of cancer.”⁶¹ Even though an argument may occur as to the extent of its affects, with no viable way to monitor the levels of PFAS in certain products, it may as well be impossible to know the severity of harm that is being done to people and the environment by using PFAS in cosmetics.

Apart from cosmetics, PFAS in clothing is also a major concern. Name brand clothing companies like Patagonia which cater to environmental lovers and outdoorsmen alike, are receiving criticism for using PFAS in its waterproof clothing.⁶² In 2015, “Patagonia received criticism from Greenpeace, as toxic chemicals

⁵⁸ See Roy, *supra* note 5.

⁵⁹ *Per and Polyfluoroalkyl Substances (PFAS) in Cosmetics*, U.S. FOOD & DRUG ADMIN., (last updated Feb 25, 2022), https://www.fda.gov/cosmetics/cosmetic-ingredients/and-polyfluoroalkyl-substances-pfas-cosmetics_ (last visited Dec. 18, 2022).

⁶⁰ *Id.*

⁶¹ *Questions and Answers on PFAS in Food*, U.S. FOOD & DRUG ADMIN., (last updated July 6, 2022), <https://www.fda.gov/food/chemical-contaminants-food/questions-and-answers-pfas-food>, (last visited Dec. 18, 2022).

⁶² Annija Erdmane, *Patagonia’s conflicting green consumerism*, COM. WASTE, (July 3, 2019) <https://commercialwaste.trade/patagonias-conflicting-green-consumerism/>.

were found within the brand's apparel material."⁶³ The article reiterated that "the waterproof materials containing toxi[ns]are harmful . . . to humans." Since then, the company has made a commitment to convert its water-repellant finishes that contain PFAS and its counterparts, "to non-fluorinated versions by 2024."⁶⁴ Another product notable to contain PFAS are fire-fighting foams.⁶⁵ When fires are a blaze, so are PFAS. Again, intended to be used for a good reason. In the manufacturing of fire-fighting foams, "PFAS serve as surfactants that spread the foam to cool and suppress the fire."⁶⁶ While it is noted that using PFAS in these foams prove to be extremely effective, they also serve as "a major source of PFAS pollution [and its spreading of toxic chemicals]."⁶⁷

As research suggests, there is a possibility that PFAS exist in hundreds of consumer products and in most of the earth's natural resources; notwithstanding the invidious transferability of PFAS through our water sources, the concerns of inadvertent and prolonged exposure of PFAS in products and packaging, and some United States ("U.S.") manufacturers voluntarily phasing out the use of PFAS, PFAS persist.⁶⁸ Even though researchers have found PFAS to be "likely carcinogenetic," PFAS persist.⁶⁹ PFAS remain present throughout the U.S. and remain in use outside of the U.S.⁷⁰

⁶³ *Id.*

⁶⁴ *PFC Free*, PATAGONIA, <https://www.patagonia.com/our-footprint/pfc-free.html>, (last visited Jan. 25, 2023).

⁶⁵ *PFAS-Containing Firefighting Foams*, CLEAN WATER ACTION, <https://cleanwater.org/pfas-containing-firefighting-foams> (last visited Jan. 21, 2023).

⁶⁶ *Id.*

⁶⁷ *Id.*

⁶⁸ The Associated Press, *EPA warns that even tiny amounts of chemicals found in drinking water pose risks*, NPR, (June 15, 2022, 11:47 am), <https://www.npr.org/2022/06/15/1105222327/epa-drinking-water-chemicals-pfas-pfoa-pfos>.

⁶⁹ See Diaz & Stewart, *supra* note 12.

⁷⁰ Megan Noonan, *The Doctor Can't See You Yet: Overcoming The "Injury" Barrier To Medical Monitoring Recovery For PFAS Exposure*, 45 Vt. L. REV. 287, 293 (2020).

III. HOW PFAS DIRECTLY IMPACT THE STATE OF FLORIDA: RESIDENTS AND ENVIRONMENT

A. Residents & Environment

An estimate of over twenty-one million people, fifty percent of whom are women, live in the State of Florida.⁷¹ PFAS have been linked to birth defects in children, reproductive issues in women, cancers, and other health issues. Specifically, in 2017, a study by International Agency for Research on Cancer solidified the notion of PFAS as possible carcinogens:

“[T]he International Agency for Research on Cancer (“IARC”) classified perfluorooctanoic acid (“PFOA”), the most well-studied per- and polyfluoroalkyl substance (“PFAS”), as a possible human carcinogen based in part on limited epidemiologic evidence of associations with cancers of the kidney and testis in heavily exposed subjects.”⁷²

Thus, as more research is conducted, studies may reveal that PFAS will have substantial effects on the health of Florida’s population. This is because of the proliferation of PFAS in the state: in 2021, the Florida State Department of Environmental Protection “found PFAS in [three] sampled public supply wells, [twenty-two] sampled fire training facilities, [fifteen] sampled dry-cleaning sites, [twenty] current and former federal facilities, and [twenty-seven] other sites.”⁷³ Additionally, according to Fight 4 Zero, a Florida non-profit organization seeking to “bring resources such as

⁷¹ Florida, U.S. CENSUS BUREAU, (last updated July 1, 2021), <https://www.census.gov/quickfacts/FL> (last visited Dec. 18, 2022).

⁷² *PFAS Exposure and Risk of Cancer*, NATIONAL CANCER INSTITUTE, <https://dceg.cancer.gov/research/what-we-study/pfas>.

⁷³ Laura Cassels, *EPA: ‘Forever chemicals’ more toxic than first thought; at least 87 FL sites deemed contaminated*, FLA. PHOENIX, (last visited Dec. 18, 2022), <https://floridaphoenix.com/2022/06/15/epa-forever-chemicals-more-toxic-than-first-thought-at-least-87-fl-sites-deemed-contaminated/>.

environmental testing, studies, medical monitoring, [and] physician guidance. . . for clean water, soil, air, and ecosystems,” over forty sites tested in Florida have been found to be contaminated by PFAS.⁷⁴ These sites range from the cities of Key West, Miami, Palm Bay, Orlando, and Jacksonville, to Tampa, Tallahassee, and Pensacola.⁷⁵

In addition to Fight 4 Zero’s findings, there have been at least 121 reports of PFAS found in ground and drinking water sources in Florida.⁷⁶ Although, because PFAS have only been tracked for a few years, the number of contaminated sites is presumed to be much larger.⁷⁷ Most of the contamination has been found in Florida’s coastal areas which is concerning because seventy-six percent of Florida’s population lives near its coasts.⁷⁸ Because over half of Florida’s population lives near its coasts, and because PFAS are easily transferable through water sources, there is no doubt that the decline of healthy individuals will be accelerated by drinking water, eating food, and/or being exposed to waste infused with PFAS in those areas. Florida’s residents and environment is bound to suffer without stricter regulation of PFAS – which is the intention of newly enacted section 376.91 of Florida Statutes.

B. Economy

In 2016, Florida ranked number eleven within the U.S. for its seafood production.⁷⁹ It helped to support nearly 4,000 jobs and

⁷⁴ *Inspiring Change*, FIGHT FOR ZERO FLORIDA, <https://www.fight4zero.org/about> (last visited Dec. 19, 2022).

⁷⁵ *PFAS Found In Florida- Map By Fight For Zero*, FIGHT FOR ZERO FLA., <https://www.fight4zero.org/pfasmap> (last visited Dec. 19, 2022).

⁷⁶ See Houge, *supra* note 40.

⁷⁷ *Id.*

⁷⁸ *Florida*, OFFICE FOR COASTAL MGMT., <https://coast.noaa.gov/states/florida.html> (last visited Dec. 18, 2022).

⁷⁹ *Florida Seafood and Aquaculture Overview and Statistics*, FLA. DEP’T OF AGRIC. & HUM. SERV., <https://www.fdacs.gov/Agriculture-Industry/Florida-Seafood-and-Aquaculture-Overview-and-Statistics> (last visited Dec. 18, 2022).

had a 407.6-million-dollar economic effect within the state.⁸⁰ Therefore, even with the low probability that residents are not being exposed by drinking water, buying consumer products, or handling food packaging, someone who is a seafood lover in Florida, is likely to be exposed PFAS by eating seafood. Additionally, because seafood production is profitable to Florida and business owners therein, it is unlikely that without proper regulation that people will stop producing and selling seafood due to PFAS contamination. Further, even though the EPA has warned people from eating fish from contaminated areas, the average person does not know what PFAS are. Those that do, will need to do research within available findings. Those interested learning about PFAS contamination in Florida may visit the Florida Department of Environmental Protection Geospatial Open Data website to learn about what areas have been contaminated by PFAS.⁸¹

Companies in other states are feeling the pressure due to the mounting litigation pertaining to harms caused by PFAS. For example, DuPont Co., Chemours, and another company, “agreed to a \$670 million settlement in 2017 to resolve PFAS suits filed by 3,500 people in Ohio.”⁸² In 2018, a company named 3M settled with the State of Minnesota for 850 million dollars after its Attorney General sued the company for “environmental damages stemming from the manufacture of PFAS compounds.”⁸³ Currently, “3M . . . generates about 1.3 billion in sales from manufacturing PFAS and is involved in around 2,000 lawsuits that could cost the company

⁸⁰ *Id.*

⁸¹ *Eric PFA sites*, FDEP, (last updated Jan. 9, 2023),

<https://geodata.dep.state.fl.us/datasets/FDEP::eric-pfas-sites-1/about>.

⁸² Hammond et. al., *3M to Stop Producing PFAS ‘Forever Chemicals’ by End of 2025(1)*, BL (Dec. 20, 2022, 10:10 am),

<https://news.bloomberglaw.com/environment-and-energy/3m-will-stop-producing-forever-chemical-pfas-by-end-of-2025>.

⁸³ DeMeo and Caspary, *Pfapocalypse Now: The Pfas Firestorm And Implications For Florida*, ENV’T LAND & USE LAW, Vol. 94 No. 3, 46 (May/June 2020), <https://www.floridabar.org/the-florida-bar-journal/pfapocalypse-now-the-pfas-firestorm-and-implications-for-florida/>.

billions of dollars.”⁸⁴ Similarly, on December 28, 2022, a complaint was filed against Coca-Cola Company, one of the most notable beverage companies in the world, and Simply Orange Juice in the Southern District of New York for fraud under the claim that the Simply Orange Juice product which purports itself to be all natural juice, in fact, contains toxic chemicals: PFOA and PFOS; which by definition are not natural.⁸⁵ The demand is for five million dollars and the court granted defendants an extension (May 22, 2023) to respond to the claims.⁸⁶ If the claims are proven to be true, it is unlikely that a mega corporation such as Coca-Cola Company intended to put chemicals made resistant to elements for the purpose of durable clothing and other durable products in its beverage products.⁸⁷ It is likely that PFAS dissolved into the product by way of the packaging.⁸⁸

Are cases like these enough to pressure these companies to take stricter precautions when it comes to PFAS? *Superfunds* (also known as “CERCLA”) are created to rehabilitate areas contaminated by toxic substances.⁸⁹ “CERCLA is not a traditional regulatory statute that prospectively regulates behavior; rather it is remedial in nature, generally designed to address contamination on

⁸⁴ See Hammond et. al., *supra* note 82.

⁸⁵ Brittney Grimes, *Coca-Cola sued over claims its 'all-natural' Simply Orange Juice has high levels of toxic forever chemicals*, DAILY MAIL, (last updated Jan. 20, 2023, EST 18:51) <https://www.dailymail.co.uk/health/article-11659385/Coca-Cola-sued-claims-Simply-Orange-Juice-high-levels-toxic-forever-chemicals.html>

⁸⁶ Order Granting Motion for Extension of Time to Answer for *Lurenz v. The Coca-Cola Company et al.* 7:22-CV-10941(S.D.N.Y. 2022).

⁸⁷ See Brittney Grimes, *supra* note 85.

⁸⁸ *Id.*

⁸⁹ *What is a Super Fund?*, U.S. ENV’T PROT. AGENCY, (last updated Nov. 1, 2022), <https://www.epa.gov/superfund/what-superfund> (last visited Jan. 17, 2022); Thousands of contaminated sites exist nationally due to hazardous waste being dumped, left out in the open, or otherwise improperly managed. These sites include manufacturing facilities, processing plants, landfills and mining sites. CERCLA is informally called Superfund. It allows EPA to clean up contaminated sites. It also forces the parties responsible for the contamination to either perform cleanups or reimburse the government for EPA-led cleanup work.

a site-specific basis.”⁹⁰ In 1999, it was estimated that the cost to remediate a Superfund site - a clean-up site of toxic substances - was 25.7 million.⁹¹ It is likely that amount has increased. Depending on what side of the fence you occupy, you may say the cost to the environment, people, and the amount to clean-up the toxins may or may not be worth the benefits of the product containing PFAS. From the perspective of a profitable Florida business that is creating, selling, or importing products for the benefit of the population, it may think that the benefits of products that contain PFAS outweigh the negative effects on people and the environment. And in true business fashion, after conducting a cost-benefit analysis, the company may disregard the potential consequences and pay the fines associated with use of PFAS as “a cost of doing business.”

In contrast, from the perspective of a Florida resident who may inherit this problem if changes are not made, she may think damaging potentially millions of lives because a company can afford to settle claims, rehabilitate, and make the veracity of the consequences of its actions dissipate, or perceivably so, is not enough. She may think without injunctive regulation, PFAS will continue to saturate Florida, the U.S., and beyond. Luckily, there is no “may the odds be in your favor” (a nod to the movie *Hunger Games*) when it comes to PFAS. There are arguments on both sides, and in some ways PFAS are regulated (but in other ways they are not). And for some manufactures, like 3M, the pressure has prompted self-regulation.⁹²

⁹⁰ Designation of Perfluorooctanoic Acid (PFOA) and Perfluorooctanesulfonic Acid (PFOS) as CERCLA Hazardous Substances, 87 No. 171. Fed. Reg. 54415-54442 (proposed Sept. 6, 2022) (to be codified at 40 C.F.R. pt. 302); <https://www.govinfo.gov/content/pkg/FR-2022-09-06/pdf/2022-18657.pdf>.

⁹¹ See DeMeo & Caspary, *supra* note 83.

⁹² *PFAS Action: Governments, Retailers, and Brands are Stepping Up*, SAFER STATES, <https://www.saferstates.org/assets/Resources/PFAS-Momentum-Factsheet-2.8.2023.pdf> (Last updated, Feb. 2023); In 2022, the major chemical manufacturer 3M announced that it will stop manufacturing all PFAS by the end of 2025.

IV. PFAS REGULATION: HOW ARE PFAS CURRENTLY BEING REGULATED IN THE U.S. AND TO WHAT EXTENT ARE THEY REGULATED?

A. *The crux of environmental regulation*

With the emergence of environmental concerns due to various catastrophic events, major federal environmental laws were enacted to mitigate the damage that is being inflicted on the environment and on those who depend upon its preservation, which is everyone.⁹³

The most modern environmental laws that have made traction towards this goal include the National Environmental Policy Act (“NEPA”), Clean Air Act, Federal Water Pollution Control Act (“Clean Water Act”), Endangered Species Act, the Toxic Substance Control Act (“TSCA”), and the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (“CERCLA”), collectively (“Acts”).⁹⁴ NEPA establishes the foundational requirement that federal agencies must consider environmental issues in its mandates and activities.⁹⁵ Federal agencies such as the EPA have been created under NEPA to enforce the Acts and to prescribe environmental standards to be delegated by the states’ legislatures.⁹⁶ It is important to note that various factors are considered before deeming an action noncompliant with NEPA.⁹⁷ Similarly, various factors are considered before determining whether a company or otherwise is liable for costs of restoration of polluted wastes cites under CERCLA.⁹⁸ For example, before the EPA can take action pertaining to certain harmful substances, the

⁹³ Zelle et al., *Earth Law: Emerging Ecocentric Law-- A Practitioner's Guide*, §1 (Wolters Kluwer Law & Business, 2020).

⁹⁴ *Id.*

⁹⁵ *Calvert Cliffs' Coordinating Committee, Inc. v. U.S. Atomic Energy Commission*, 449 F.2d 1109 (D.C. Cir. 1971).

⁹⁶ See Zelle et al., *supra* note 93.

⁹⁷ *Id.*

⁹⁸ *Id.*

substances must fit the criteria for a hazardous substance, and be listed as such before the “EPA [can] place . . . [contaminated] property on the National Priorities List (“NPL”) and . . . pursue cost recovery actions when there is a solvent responsible party.”⁹⁹ Therefore, environmental compliance and enforcement of environmental laws are an ongoing issue in the U.S.

Although discussion of the Acts are not within the scope of this article, the EPA has proposed that PFOA and PFOS be listed as CERCLA hazardous substances.¹⁰⁰ “The proposed designation of PFOA and PFOS as hazardous substances is based on significant evidence that PFOA and PFOS may present a substantial danger to human health or welfare and the environment.”¹⁰¹ PFAS have also found its way into regulatory schemes likely stemming from one or more of the Acts. TSCA in particular has prompted lawmakers to propose additional legislation pertaining to those affected by PFAS.¹⁰²

B. Federal Regulation of PFAS

As briefly mentioned, federal agencies are designated to provide federal standards (or guidelines) under the Acts. The EPA proscribes acceptable standards pertaining to use and exposure of PFAS.¹⁰³ The “EPA can only conduct remedial actions at sites listed on EPA’s [NPL].”¹⁰⁴ “EPA determines whether the site poses a threat

⁹⁹ DeMeo & Caspary, *supra* note 83.

¹⁰⁰ *Proposed Designation of Perfluorooctanoic Acid (PFOA) and Perfluorooctanesulfonic Acid (PFOS) as CERCLA Hazardous Substances*, U.S. ENV’T PROT. AGENCY, (last updated Nov. 2, 2022) <https://www.epa.gov/superfund/proposed-designation-perfluorooctanoic-acid-pfoa-and-perfluorooctanesulfonic-acid-pfos>.

¹⁰¹ *Id.*

¹⁰² S.1334, PFAS Accountability Act, 117th Cong. (2021).

¹⁰³ See Proposed Designation of Perfluorooctanoic Acid (PFOA) and Perfluorooctanesulfonic Acid (PFOS) as CERCLA Hazardous Substances, *supra* note 100.

¹⁰⁴ See Designation of Perfluorooctanoic Acid (PFOA) and Perfluorooctanesulfonic Acid (PFOS) as CERCLA Hazardous Substances, *supra* note 90 at 54420.

to people and the environment and whether hazards need to be addressed immediately or additional site information will be collected.”¹⁰⁵ Scholars suggest that EPA has four basic approaches to setting adverse risk assessments once it has identified an environmental risk: “(1) eliminate all risks; (2) avoid unacceptable risks; (3) avoid unacceptable costs; and (4) balance costs and benefits.”¹⁰⁶ However, these assessments which may form the basis for its toxic substance standards, does not prevent regulation by the States to go beyond the EPA’s acceptable standards or further action by Congress, within its constitutional power to implement new laws.¹⁰⁷

In April 2021, U.S. Senator Kirsten Gillibrand proposed the “PFAS Accountability Act (S. 1334)” and in October 2021, members of the House proposed its counterpart (H.R. 2751).¹⁰⁸ The bill aims to provide a “cause of action under the Toxic Substances Control Act for individuals or classes of individuals who were significantly exposed to . . . PFAS.”¹⁰⁹ If passed, this bill would authorize people who were subject to significant exposure, or who have sufficient reason to believe they have been significantly exposed, to seek remedy “against persons who engaged in any portion of a manufacturing process that created the PFAS and foresaw (or reasonably should have foreseen) the creation or use of PFAS would result in human exposure.”¹¹⁰ In addition to this proposal, on August 26, 2022, the EPA proposed a rule on disclosing releases of PFAS:

¹⁰⁵ *Id.*

¹⁰⁶ Cary Coglianese & Gary E. Marchant, *Shifting Sands: The Limits of Science in Setting Risk Standards*, UNIVERSITY OF PENNSYLVANIA L. REV. 1255, 1325-40 (2004).

¹⁰⁷ U.S. Const. art. I, § 8, cl. 18.

¹⁰⁸ Elissa J. Preheim et al., *A new federal cause of action for? The proposed PFAS Accountability Act of 2021*, 39 NO. 08 WEST LAW JOURNAL TOXIC TORTS 02 (2021).

¹⁰⁹ S.1334, PFAS Accountability Act, 117th Cong. (2021).

¹¹⁰ S.1334, PFAS Accountability Act, 117th Cong. (2021).

The rulemaking would require entities to immediately report releases of PFOA and PFOS that meet or exceed the reportable quantity to the National Response Center, state or Tribal emergency response commission, and the local or Tribal emergency planning committee (local emergency responders). Entities would not be required to report past releases of PFOA or PFOS as they were not yet listed as hazardous substances.¹¹¹

The rule proposed by the EPA would not address prior PFAS exposure or estimate the amount of PFAS released within the U.S. over the last eighty years. But, although merely a guideline, it would allow the EPA to monitor future amounts of these toxic chemicals, and it would align with the proposed federal bill: allowing individuals to seek recovery for injuries sustained from exposure to PFAS under federal law. As previously mentioned, the EPA strengthened its agenda on September 6, 2022, when it proposed designating certain PFAS as hazard substances (under CERCLA). It reasoned that:

Designating PFOA and PFOS as hazardous substances will likely increase the pace at which cleanups occur because it will allow the Federal government to require responsible private parties to address releases of PFOS and PFOA at sites without other ongoing cleanup activities and allow the government and private parties to seek to recover

¹¹¹ *Proposed Designation of Perfluorooctanoic Acid (PFOA) and Perfluorooctanesulfonic Acid (PFOS) as CERCLA Hazardous Substances*, U.S. ENV'T PROT. AGENCY, <https://www.epa.gov/superfund/proposed-designation-perfluorooctanoic-acid-pfoa-and-perfluorooctanesulfonic-acid-pfos>, (last visited Dec. 19, 2022).

cleanup costs from potentially responsible parties assuming relevant statutory criteria are met.¹¹²

Albeit slowly, there will be increased federal regulation of PFAS in the near future. Federal agencies apart from the EPA have already begun to act: The Department of Defense is taking action to remove PFAS “in all military Meals Ready to Eat (‘MRE’) food packaging” and in firefighting foams.¹¹³ On a state level, as of February 2022, over 30 states are considering bills that range from removing PFAS from cosmetics and medical monitoring of PFAS to banning incineration of PFAS.¹¹⁴ In some states, laws have already been initiated to the same. Therefore, at least “the powers that be” can all agree that PFAS are harmful to people and to the environment which warrants regulation. However, whether the federal government and state governments agree upon the extent of the harm is an issue that we further explore in various approaches to PFAS regulation in the states.

A. State Regulation of PFAS: California, Maine, and Michigan

Although no federal regulation specific to PFAS has passed, some states are taking the potential catastrophic effects of PFAS very seriously. The State of California is taking a *eliminate all risks approach* to cleaning up PFAS.¹¹⁵ California is placing legal

¹¹² See Designation of Perfluorooctanoic Acid (PFOA) and Perfluorooctanesulfonic Acid (PFOS) as CERCLA Hazardous Substances, *supra* note 90.

¹¹³ *PFAS Action: Governments, Retailers, and Brands are Stepping Up*, SAFER STATES, (last updated Aug., 2023), <https://www.saferstates.org/assets/Resources/PFAS-Momentum-Factsheet-8.2.2023.pdf>.

¹¹⁴ See Bureson, *supra* note 7; See also *Toxic Chemicals*, *supra* note 2.

¹¹⁵ See Designation of Perfluorooctanoic Acid (PFOA) and Perfluorooctanesulfonic Acid (PFOS) as CERCLA Hazardous Substances, *supra* note 90.

restrictions that are more stringent than the EPA's recommendations.¹¹⁶ Beginning January 1, 2025, the State of California is placing a ban on all PFAS in consumer products. The ban states: "no person or entity shall manufacture, sell, deliver, hold, or offer for sale in commerce any cosmetic product that contains intentionally added perfluoroalkyl and polyfluoroalkyl substances (PFAS)."¹¹⁷ California has also that "[a] manufacturer shall use the least toxic alternative when replacing PFAS chemicals in a juvenile product."¹¹⁸ A similar stipulation is placed on its food packaging. That stipulation refers to manufactures that have intentionally added PFAS to a product and the PFAS have a "functional or technical effect in the product" or "[t]he presence of PFAS in a product or product component at or above 100 parts per million."¹¹⁹

Although California's statute proscribes essentially a complete ban of PFAS, the issue is that it only applies to persons or manufactures that "intentionally" use PFAS. Meaning that inadvertent usage of PFAS in products will not be punishable under the statute. Further, proving that a company intentionally used PFAS in its products, especially PFAS that are undetectable in cosmetic products, may be a difficult task if one were to bring a cause of action under the statute.

Other states are taking the *avoid unacceptable risk approach*.¹²⁰ The State of Maine's law against PFAS is less stringent than California's and it does not take effect until January 1, 2030. Under Me. Rev. Stat. tit. 38, § 1614,

A person may not sell, offer for sale or distribute for sale in this State any product that contains intentionally added PFAS, unless the department has determined by rule that the use of PFAS in the product is a currently unavoidable use. The department may specify specific

¹¹⁶ See Coglianese & Marchant, *supra* note 106.

¹¹⁷ Cal. Health & Safety Code Ann. § 108981.5 (West 2022).

¹¹⁸ Cal. Health & Safety Code Ann. § 108947 (West 2022).

¹¹⁹ Cal. Health & Safety Code Ann. § 109000 (West 2022).

¹²⁰ See Coglianese & Marchant, *supra* note 106.

products or product categories in which it has determined the use of PFAS is a currently unavoidable use. This prohibition does not apply to the sale or resale of used products.¹²¹

Unlike the California statute, Maine's statute does not mention the manufacturing of PFAS, nor does it prevent the resale of used products that contain them. Meaning that, unless a person is a merchant of PFAS, people selling used garments, shopping in thrift stores and other resellers of similar products would be allowed to sell and purchase items known to contain PFAS because those individuals did not intentionally add PFAS to the product and there is no prohibition on a resale of a used product.¹²² This statute also does not prevent inadvertent use of PFAS, but essentially protects it: "unless . . . the department [has] determined the use of PFAS is a current unavoidable use."¹²³ Therefore, some risks that come with using PFAS are acceptable in the State of Maine, if unavoidable, and arguments to the same.

The State of Michigan appears to use a different approach than both California and Maine. In August of 2022, new rules took effect in the State of Michigan pertaining to maximum contaminant levels ("MCLs") "and sampling requirements for seven PFAS compounds, affecting approximately 2,700 water supplies in Michigan."¹²⁴ However, these requirements were shut down in a judicial order in November of 2022.¹²⁵ In November 15, 2022, Court

¹²¹ Me. Rev. Stat. tit. 38, § 1614 (2021).

¹²² U.C.C. § 2-104 (2022).

¹²³ Me. Rev. Stat. tit. 38, § 1614 (2021).

¹²⁴ *Overview of PFAS Drinking Water Rules*, MICHIGAN DEP'T OF ENV'T, GREAT LAKES, AND ENERGY, (last updated July 2020), <https://www.michigan.gov/egle/-/media/Project/Websites/egle/Documents/MPART/PFAS/overview-of-pfas-drinking-water-rules.pdf?rev=6d116d8f530e4b6fa00464743080b6b2&hash=00C45F6006F97FC97FEFF14708317598>, (last visited Jan 10, 2023).

¹²⁵ *Michigan judge sides with 3M, invalidates PFAS cleanup rules*, MLIVE, (last updated Nov. 17, 2022, 4:27 pm),

of Claims Judge Brock Swartzle wrote a twenty page order siding with 3M Corp., agreeing that Gov. Gretchen Whitmer's administration violated administrative procedure by failing to properly account for certain business costs while setting groundwater cleanup rules in late 2020. Swartzle invalidated the rules, but, citing their public benefit and expected standard-setting at the federal level, paused that effect pending the outcome of appeals.¹²⁶ With hindsight on the ways the EPA and other states tend to assess risk for providing standards of PFAS, it appears in the above article, a cost-benefit analysis is required in the State of Michigan.¹²⁷ And perhaps, it will eventually be required in every state if courts mirror the ruling in *Michigan v. EPA* pertaining to the EPA's regulation under the Clean Air Act.

The Court held that federal administrative agencies must engage in 'reasoned decision making,' which requires the agency to consider all relevant factors. Because the cost to power plants is certainly a relevant factor when deciding whether to regulate electric utility steam generating units ("EGUs"), the Environmental Protection Agency ("EPA"), should have considered the cost to power plants in making its decision. The EPA erred in interpreting the 'appropriate and necessary' requirement of the Clean Air Act because it was unreasonable to interpret the phrase as not requiring the EPA to consider all relevant factors, including cost to power plants.¹²⁸

This line of "cost based" reasoning could be used under other Acts and under Florida's attempt to regulate PFAS.

<https://www.mlive.com/public-interest/2022/11/michigan-judge-sides-with-3m-invalidates-pfas-cleanup-rules.html>, (last visited Jan 17, 2023).

¹²⁶ *Id.*

¹²⁷ See Coglianese & Marchant, *supra* note 106.

¹²⁸ *Michigan v. Environmental Protection Agency*, OYEZ, <https://www.oyez.org/cases/2014/14-46> (last visited Jan 23, 2023).

**V. FLORIDA’S ATTEMPT TO REGULATE PFAS:
WHERE DOES FLORIDA FALL ON THE SCALE OF
ASSESSING THE RISKS OF PFAS AND HOW ARE LAW
MAKERS IMPLEMENTING THIS DECISION?**

*A. Application of Perfluoroalkyl and polyfluoroalkyl Substances
§376.91*

Essentially, Florida will not be taking any action pertaining to PFAS until 2025 and will be looking to the EPA to guide its regulation. Florida’s PFAS cleanup law, Statewide Cleanup of Perfluoroalkyl and polyfluoroalkyl Substances, Section 376.91 of Florida Statutes, in relevant part:

If the United States Environmental Protection Agency has not finalized its standards for PFAS in drinking water, groundwater, and soil by January 1, 2025, the department shall adopt by rule statewide cleanup target levels for PFAS in drinking water, groundwater, and soil using criteria set forth in s. 376.30701, with priority given to PFOA and PFOS.¹²⁹

Not only will Florida refrain from taking any action pertaining to PFAS until 2025, but Florida will also not be setting any new standards for PFOA and PFOS specifically. However, it will follow EPA finalized guidelines or those provided in Section 376.30701 of Florida Statutes. This is problematic because even with minimum standards set by the EPA, as discussed, residents of Florida and its environment are surrounded by water and contaminated sites. As implied in California, Maine, and Michigan’s PFAS specific legislation, the unique needs of Florida may warrant more stringent regulation. Therefore, leaving it up to detached federal agencies to guide its standards could be less effective. Again, although the “EPA is making final determinations to regulate two contaminants, perfluorooctanesulfonic acid (PFOS) and

¹²⁹ FLA. STAT. § 376.91.

perfluorooctanoic acid (PFOA), in drinking water,” it has not been finalized.¹³⁰

It is promising to know that the EPA has proposed to designate PFOA and PFOS “including their salts and structural isomers, as hazardous substances.”¹³¹ Further, “[I]f finalized, [this designation] would result in a default RQ [reportable quantity] of one pound [in a 24 hour period] pursuant to CERCLA section 102(a).”¹³² Further that, “CERCLA section 103(a) requires any person in charge of a vessel or facility as soon as they have knowledge of any release.”¹³³ The proposal would potentially affect “(1) PFOA and/or PFOS manufacturers (including importers and importers of articles); (2) PFOA and/or PFOS processors; (3) manufacturers of products containing PFOA and/or PFOS; (4) downstream product manufacturers and users of PFOA and/or PFOS products; and (5) waste management and wastewater treatment facilities.”¹³⁴ If finalized and violated, the EPA “could recover costs from potentially responsible parties and require potentially responsible parties to conduct the cleanup themselves.”¹³⁵ Which would likely be an expensive *Superfund*.¹³⁶ Although there is no clause suggesting that if the EPA’s finalized standards pertaining to the use of PFAS are minimally effective that Florida will use section 376.30701 of Florida Statutes, it warrants consideration.

Section 376.30701 of Florida Statutes in relevant part: “The secretary of the department shall establish criteria by rule . . . a site

¹³⁰ *Final Regulatory Determinations for CCL 4*, U.S. ENV’T PROT. AGENCY, <https://www.epa.gov/ccl/regulatory-determination-4> (last updated April 12, 2022).

¹³¹ See Designation of Perfluorooctanoic Acid (PFOA) and Perfluorooctanesulfonic Acid (PFOS) as CERCLA Hazardous Substances, *supra* note 90.

¹³² *Id.*

¹³³ *Id.*

¹³⁴ *Id.*

¹³⁵ See Designation of Perfluorooctanoic Acid (PFOA) and Perfluorooctanesulfonic Acid (PFOS) as CERCLA Hazardous Substances, *supra* note 90.

¹³⁶ See *What is a Super Fund?*, *supra* note 89.

rehabilitation program. . . and the level at which a rehabilitation program task and a site rehabilitation program may be deemed completed.”¹³⁷ “In establishing these rules, the department shall apply, to the maximum extent feasible, a risk-based corrective action process to achieve protection of human health and safety and the environment in a cost-effective manner.”¹³⁸ This rehabilitation program must

(a) [c]onsider the current exposure and potential risk of exposure to humans and the environment, including multiple pathways of exposure . . . [;](b) [e]stablish the point of compliance at the source of the contamination . . . [;] (c) [e]nsure that the site-specific cleanup goal is that all contaminated sites being cleaned up pursuant to this section ultimately achieve the applicable cleanup target levels provided in this subsection . . . [;] (d) [a]llow the use of institutional or engineering controls at contaminated sites being cleaned up pursuant to this section, where appropriate, to eliminate or control the potential exposure to contaminants of humans or the environment . . . [;] (e) Consider the interactive effects of contaminants, including additive, synergistic, and antagonistic effects . . . [;] (f) [t]ake into consideration individual site characteristics . . . [; and] (g) [a]pply state water quality standards[.]”¹³⁹

Section 376.30701 practically outlines requirements for superfund sites and leaves the implementation up to the secretary of the established regulators who will assess the risk in “a cost-effective manner.”¹⁴⁰ Therefore, although Florida would be in a better position to determine its PFAS clean-up standards, as similarly indicated in *Michigan v. EPA*, it would likely be bending to the whim of costs of

¹³⁷ FL STAT. § 376.30701.

¹³⁸ *Id.*

¹³⁹ FL STAT. § 376.30701.

¹⁴⁰ *Id.*

“achiev[ing] protection of human health and safety and the environment.”¹⁴¹

B. Comparative Analysis

In comparing section 376.91 of Florida Statutes with the statutes of California, Maine, and Michigan, it is clear that Florida is not placing PFAS regulation at the top of its priority list. Even after the Florida League of Cities has admitted that “[t]he presence of Per- and Polyfluoroalkyl Substances (PFAS) in soil and water has been a concern for some time now[.]” clean-up efforts in Florida will not be fully considered until 2025.¹⁴² In contrast, with or without the EPA’s finalized standards, California’s statute, having the most comprehensive regulation by addressing PFAS in cosmetics, textiles, water, firefighting foams, and in food packaging, a general ban of PFAS will begin on January 1, 2025.¹⁴³ Comparatively, Maine’s statute, with a delayed effective date and lenient PFAS regulation, and Michigan’s plan to perfect its regulation does not fall too far behind Florida’s efforts. Section 376.91 of Florida Statutes addresses the PFAS problem by offering a middle-tier solution: determining on a case-by-case basis under section 376.30701 if the EPA does not finalize its standards.¹⁴⁴ The question becomes whether the cost of requiring companies and other sources that may disperse PFAS to make changes in Florida will outweigh protecting residents and the environment in the state.

It is worth mentioning that not only are states and federal agencies taking steps to reduce the impact caused by PFAS, but various grocery stores, major brands, and retailers are taking steps to eliminate PFAS completely or to remove some PFAS from food

¹⁴¹ *Michigan v. Environmental Protection Agency*, OYEZ, <https://www.oyez.org/cases/2014/14-46> (last visited Jan. 23, 2023).

¹⁴² Renzo Downey, *New law directs DEP to set up PFAS cleanup rules, as feds issue advisory*, (June 21, 2022), <https://floridapolitics.com/archives/534155-new-law-directs-dep-to-set-up-pfas-cleanup-rules-as-feds-issue-advisory/>.

¹⁴³ Cal. Health & Safety Code Ann. § 108981.5 (West 2022).

¹⁴⁴ FL STAT. § 376.30701.

packaging and textiles.¹⁴⁵ Target is notably taking action to restrict PFAS in cosmetics.¹⁴⁶ Additionally, strong litigation efforts by State Attorney Generals in several states have matriculated by filing actions against “PFA manufactures, firefighting foam producers, polluting companies, and the Department of Defense over contamination.” Thus, although Florida and other states appear to be slow to implement swift changes, the PFAS crisis, which is everyone’s problem, is being addressed in other parts of the U.S.¹⁴⁷

VI. CONCLUSION

Does section 376.91 of Florida Statutes prevent, mitigate, or reverse the effects of PFAS? The short answer is no. Although there may be conflicting views as to the extent of the harms caused by PFAS, they are certainly causing harm to people and to the environment.¹⁴⁸ PFAS are in our water, food, and in the products we buy.¹⁴⁹ Florida is specifically under siege due to its seafood production, population in coastal areas, and the limited availability of data. Although there is no current federal regulation that specific addresses the PFAS crisis, the EPA is in the process of placing PFOS and PFOA on its NLP list so that it may take actions under CERCLA.¹⁵⁰ This would allow the EPA to remedy extensive exposure to PFAS by requiring violators to clean-up the chemicals through *Superfunds*.¹⁵¹ Additionally, as PFAS engulf the different parts of the U.S., states are taking action under EPA’s

¹⁴⁵ *PFAS Action: Governments, Retailers, and Brands are Stepping Up*, SAFER STATES, (last updated, Feb. 2023), <https://www.saferstates.org/assets/Resources/PFAS-Momentum-Factsheet-2.8.2023.pdf>, (last visited March 6, 2023).

¹⁴⁶ *Id.*

¹⁴⁷ *Id.*

¹⁴⁸ See *DEP’s Efforts to Address PFAS in the Environment*, *supra* note 4.

¹⁴⁹ *Id.*

¹⁵⁰ See Designation of Perfluorooctanoic Acid (PFOA) and Perfluorooctanesulfonic Acid (PFOS) as CERCLA Hazardous Substances, *supra* note 90.

¹⁵¹ *Id.*

guidelines.¹⁵² And some states are exceeding those guidelines.¹⁵³ States like California are taking a strict approach to PFAS regulation by placing a ban on intentional manufactures and sellers of PFAS.¹⁵⁴ Other states like Maine are being precautions with its restrictions limiting the scope of using PFAS to only what is necessary.¹⁵⁵ However, like the courts in Michigan, interpreting statutes and requiring cost analysis in enacting and enforcing protections against PFAS prove a difficult task.¹⁵⁶

Florida and its environment is at risk because of its unique relationship with the coasts.¹⁵⁷ Additionally, PFAS are found to be more prevalent in seafood.¹⁵⁸ And because Florida produces a large amount of seafood, it increases the likelihood that PFAS will spread in areas that produce and sell seafood to Florida residents.¹⁵⁹ Further, researchers have found that PFAS are present throughout the entire state.¹⁶⁰ Thus, as it currently sits, legislation in Florida to address the PFAS crisis is a minimal effort attempt.¹⁶¹

Section 376.91 of Florida Statutes which is meant to address the PFAS issue in the ground water and soil does not prescribe any actions regarding the use or manufacturing of PFAS until it is triggered by the EPA's finalized standards, or the year 2025 when it will then implement section 376.30701 if those standards have not been finalized.¹⁶² Moreover, section 376.91 of Florida Statutes does not address selling or the manufacturing of PFAS.¹⁶³ Where this leaves the future of residents and the

¹⁵² See *Toxic Chemicals*, *supra* note 2.

¹⁵³ *Id.*

¹⁵⁴ Cal. Health & Safety Code Ann. § 108981.5 (West 2022).

¹⁵⁵ Me. Rev. Stat. tit. 38, § 1614 (2021).

¹⁵⁶ *Michigan v. Environmental Protection Agency*, OYEZ, <https://www.oyez.org/cases/2014/14-46> (last visited Jan 23, 2023).

¹⁵⁷ See *Florida*, *supra* note 78.

¹⁵⁸ See *FDA Shares Results of PFAS Testing in Seafood*, *supra* note 56.

¹⁵⁹ See *Florida Seafood and Aquaculture Overview and Statistics*, *supra* note 79.

¹⁶⁰ See *PFAS Found In Florida- Map By Fight For Zero*, *supra* note 75.

¹⁶¹ FL STAT. § 376.30701.

¹⁶² FL STAT. § 376.30701.

¹⁶³ *Id.*

environment in the State of Florida is yet to be determined. Further, how long it will take to reverse or mitigate the effects of PFAS will be difficult because researchers have just begun to monitor PFAS.¹⁶⁴

For now, although efforts are building in other parts of the U.S., section 376.91 of Florida Statutes is not preventing damages caused by PFAS.¹⁶⁵ However, future legislation under the finalized standards by the EPA or section 376.30701 of Florida Statutes may show traction once implemented.¹⁶⁶

Notwithstanding, I propose that Florida adopt additional regulation that aligns with the PFAS ban proposed in California.¹⁶⁷ Under the U.S. Constitution, Florida may prevent the sale, manufacturing, and use of products containing PFAS under its ability to protect the health and safety of its citizens.¹⁶⁸ We know that PFAS have been correlated to health issues. This ban would slow future determinantal effects of PFAS on residents and the environment in the state by preventing new PFAS exposure. As California's law applies to intentional use of PFAS, the finalized EPA standards may apply to unintentional use of PFAS, and if the unintentional use of PFAS in products or otherwise violates those EPA standards, as proposed in the federal bill, PFAS Accountability Act, those manufactures could be liable on a state level and federal level for exposing residents and the environment to PFAS.¹⁶⁹ Under additional regulation, because manufactures are aware of the harmful effects of PFAS, ignorance to the amount of PFAS would not absolve them of liability. Additionally, manufactures may find alternative methods to create durable products as required by California law in juvenile products.¹⁷⁰ Moreover, if all of the above

¹⁶⁴ See Houge, *supra* note 40.

¹⁶⁵ See PFAS Action, *supra* note 145; FLA. STAT. § 376.91.

¹⁶⁶ FLA. STAT. § 376.91.

¹⁶⁷ Cal. Health & Safety Code Ann. § 108981.5 (West 2022).

¹⁶⁸ U.S. CONST. AMEND. X; Christopher R. Edgar, *The "Traditional State Function" Doctrine: A Comparative Institutional Perspective*, NYU. J. L. & LIBERTY (2005);

https://www.law.nyu.edu/sites/default/files/ECM_PRO_060919.pdf.

¹⁶⁹ S.1334, PFAS Accountability Act, 117th Cong. (2021).

¹⁷⁰ Cal. Health & Safety Code Ann. § 108947 (West 2022).

proposals are implemented, and PFAS, PFOA and PFOS are (as pending) designated as hazardous substances, not only will violators be liable to people exposed, but will also be required to clean-up the toxins under CERCLA.¹⁷¹

¹⁷¹ See Proposed Designation of Perfluorooctanoic Acid (PFOA) and Perfluorooctanesulfonic Acid (PFOS) as CERCLA Hazardous Substances, *supra* note 100.