Mr. David W. Galindo
Director, Water Quality Division
TCEQ
12100 Park 35 Circle
Austin, TX 78753

August 10, 2020

Submitted via email to IPCOMMNT@tceq.texas.gov

Dear Mr. Galindo:

Thank you for the opportunity to provide stakeholder input regarding the Texas Council on Environmental Quality (TCEQ) proposal to place a prohibition in wastewater permits for facilities which handle plastic resin pellets generated at organic chemical manufacturing facilities, or packaged and transported to processors for molding into plastic products. We appreciate the opportunity to lend our plastic pollution expertise to this effort.

Turtle Island Restoration Network (TIRN) supports this proposal generally, because it is an important step to combating the rampant plastic pollution devastating our oceans and marine wildlife. TIRN has been researching marine debris and their impacts to our marine environment and health since 2013 and has launched multiple campaigns to encourage the public and local stakeholders to reduce plastic use. There is a current estimate that the ocean has over 150 million metric tonnes of waste circling our planet, with 8 million metric tonnes added each year, and 80% of that waste is washed in from land-based sources.

We offer the following comments based on our extensive expertise on plastic pollution and its effects on marine life:

1. *Please provide input on the following proposed definition of plastic (taking into consideration the focus on pre-production plastic): Plastic means all forms of visible plastic produced, received, or handled at the permittee's facility, including but not limited to: pellets, powder and flakes.*

TIRN supports the broadest possible definition of "plastic" in this proposal. As such, we are generally supportive of the current definition, with some suggestions for inclusion. We appreciate that the current iteration makes clear that the definition of "plastic" can refer to many things, "including but not limited to" being the key operative words.

However, we believe the definition should be broadened to include: 1) plastics not "visible" to the naked eye, and 2) post-consumer refuse, such as plastic bottles, straws, or bags, which is

expressly excluded from the definition. We understand that there may be additional policy considerations of a broader plastic definition, but we would be willing to offer our expertise in meeting such challenges and are confident that it can be done with currently available standards of technology.

In limiting plastic pollution from manufacturing and processing facilities as well as post-consumer refuse, TCEQ should update Industrial Wastewater Permit Applications for individual stormwater permits and the Multi-Sector General Permit, and Investigator Guidance to clarify that TPDES permits do not authorize any amount of plastic pellets, flakes, fluff and powder to be discharged into receiving waters. We further encourage TCEQ to require that all transporters, bulk terminal operators and recycling facilities that handle, transport, or dispose of plastics also strictly adhere to the prohibition of plastic pollution. Regular monitoring in the form of inspections from neutral personnel should be conducted from all potential pollution sources, including transportation sites and recycling facilities, and the results of such monitoring should be made publicly available. TCEQ should also include source reduction and waste prevention regulations as an important parallel effort to prevent all forms of plastics from entering stormwater and wastewater systems.

In order for the intent of this prohibition on the discharge of plastics to fully be realized, the definition must be broadened to include the two aforementioned categories of plastics.

2. *TCEQ's intent is to regulate plastics visible to the naked eye, but please provide input on class sizes for our review. Additionally, please provide input on the use of the word "visible" in the definition above.*

TIRN does not support the current proposal to limit the definition of "plastic" to that which can be seen by the naked eye, or that which is "visible." TIRN has been involved in microplastic research and monitoring since 2016. Working with partners such as Florida Sea Grant, Mississippi State University, NOAA and Mission-Aransas, TIRN has been able to accumulate data and develop a knowledge of the microplastic issue in our area and throughout the Gulf of Mexico. We are finding microplastics including microfibers, nurdles, monofilament, films, and plastic fragments (among others) in our sediment and water samples along our coastline and at the Flower Garden Banks National Marine Sanctuary.

Based on our observations and analysis, the data indicate that many microplastics contributing to some of the worst health and environmental effects to the marine environment are unable to be seen by the naked eye. These "invisible plastics" are concerning because we know they have a tendancy to bioaccumulate in the body, but we do not know what harm may cause to global health in the long run. We have seen in numerous studies that the chemical composition of plastics is incredibly harmful and possibly carcinogenic or teratogenic, depending on the compound.

Plastics of all sizes have negative impacts on marine animals and wildlife. Microplastics eaten by larger marine animals will generally pass through their bodies, although research does show that microplastics can be retained in the gut for extended periods where they may cause abrasion and

damage to internal tissues. Nanoplastics can pass through the gut wall and travel to different parts of the body, such as the lungs and liver, where they can cause damage.

Smaller animals including marine and freshwater invertebrates can suffer a range of effects from ingesting microplastics including reduced reproduction and growth. These effects are generally caused by physical damage, including lacerations and inflammatory responses as well as reduced feeding behavior when microplastics are consumed instead of digestible food. Filter feeders such as mussels and oysters are particularly vulnerable to ingesting microplastics as they filter high volumes of water while feeding. Nanoplastics are quickly becoming an urgent concern because studies are showing that they adhere to plant roots and hinder growth and reproduction, changing living organisms on a molecular level. Effects vary between species and by the types of plastic and the concentration of micro- or nanoplastics.

The effects of ubiquitous microplastics and nanoplastics on human health is even more poorly understood. Microplastics have been detected in common table salt, tap water and up to 90% of bottled water. Scientists found on average 325 microplastic particles per liter of bottled water. Most of these particles were very small in size (6.5–100 µm), and only about 10 particles per liter were larger than 100 µm. Recently, microplastics have even been found to be present in the air and in household dust. Most of us are likely to breathe in microplastics on a day-to-day basis. Studies also show that the average person is consuming a credit card's worth of plastic in a week, and with as many as 51 trillion pieces of microplastic in our oceans, we are deeply concerned. Ongoing studies are determining the level of health effects this has on the human population.

In addition to the ecological and health benefits of including plastics of all sizes, it also increases regulatory efficiency and clarity to include plastics of all sizes in the definition. In fact, it makes little regulatory sense to limit the definition of plastics to those that are "visible," or able to be seen by the naked eye. Plastic powder can be seen in large piles but can be carried by air or water becoming "invisible."

Although we currently do not understand the full global health impact plastics will have on the world, we do know how to immediately halt their entry into the watershed and food web. Much of these microplastics are dumped into the ocean from plastic manufacturing facilities (including transportation to and from facilities), wastewater treatment plants and stormwater sources, so if TCEQ includes all sizes of microplastics in this proposal, including those which cannot be seen with the naked eye, TCEQ will be the leader in global health.

We are confident that TCEQ and their resident experts are aware of newly available technologies and are able to immediately employ prohibitions on plastic discharge in all of its forms. However, we realize this may come with a unique set of challenges, and are happy to offer our expertise as a way to broaden the definition of "plastics" in TCEQ's proposal, thus fully realizing the primary intent. The definition of plastic should include all plastics less than 5 millimeters in size, including pellets, flakes, fluff and powder.

3. *In addition to the prohibition, permittees with stormwater outfalls under the Multi-Sector General Permit or an individual permit will be required to develop a comprehensive set of Best Management Practices to include within their Stormwater Pollution Prevention Plan. Please provide input to assist with the identification of effective BMPs and potential sources of information such as "Operation Clean Sweep".*

BMPs should include housekeeping and spill prevention procedures, containment systems at all storm drain discharge locations, sealed containers for storage and transport of preproduction plastic pellets, powders, and flakes, capture devices and vacuum systems at loading and unloading locations, and regular inspections of the workplace, especially at loading and unloading areas. TCEQ should continuously go back and incorporate new BMPs to reflect advancements in technologies.

We also suggest TCEQ encourage "green infrastructure" as a key component of Stormwater Pollution Prevention Plan BMPs, as this has been shown to successfully filter microplastics before entering stormwater drains with little unintended environmental consequences and low economic cost. Implementing similar projects at wastewater treatment outfalls and/or additional stormwater outfalls, or any other source of microplastic dumping should be effective at microplastic removal, economically sound, and minimally invasive to the surrounding environment. Some examples of successful forms of green infrastructure include permeable pavements and bioswales.[1]

4. *Please provide input on additional requirements such as: outfall and receiving water inspections, notification of spills and unauthorized discharges to Regional Office, recovery of released materials from receiving waters, and clarification that the point of compliance for the prohibition on the discharge of plastic is at the final outfall.*

TCEQ should require all plastics manufacturers to submit examples of preproduction plastics made at their facilities to the University of Texas Marine Science Institute and Texas A&M University – Corpus Christi in order to engage in plastic "fingerprinting." This would increase the reliability of the fingerprinting tool and take the first step at enabling scientists to link marine debris in the form of preproduction plastic pollution to the outfall source of pollution.

TCEQ must also issue severe penalties for violations of considerable enough size to deter future violations.

5. *TCEQ is requesting stakeholder input regarding additional time to comply with the prohibition on the discharge of plastic. The Texas Surface Water Quality Standards allow up to a three-year compliance period. TCEQ is proposing that requests for a compliance period must justify the need for additional time including a construction schedule to install new control structures or retrofitting existing systems to achieve compliance. If approved, the compliance period will include submission of quarterly progress reports.*

[1] https://www.epa.gov/green-infrastructure/performance-green-infrastructure

TIRN respectfully requests the quickest possible compliance period so we may immediately halt the influx of microplastics into our waterways. It is currently estimated that 230,000 tonnes of nurdles pollute our oceans every year, which means billions upon billions of these pollutants impact our waterways every day. The quickest possible compliance period should be established to realize the intent of TCEQ's proposal and halt the release of pollutants into our waterways. We believe one year is sufficient to safely transition to prohibiting the discharge of plastics into waterways, and encourage TCEQ to update their proposal to reflect the shorter compliance period.

Thank you for the opportunity to provide public comments as a key stakeholder in this area. We are happy to provide additional information or answer any questions you may have.

Sincerely,

Annalisa Batanides Tuel
Policy & Advocacy Manager
Turtle Island Restoration Network