# North America

## Production, Transport & Recycling Activity

| Activity | Observations |
|---|---|
| Plastic Production | • North America accounted for 18% of global plastic production in 2021<br>• 17% of world trade share in primary plastic exports in 2021<br>• USA was world's largest exporter of plastics in primary forms in 2021 |
| Plastic Manufacturing | • USA has over 12,500 facilities involved in plastics industry employing almost 1 million people |
| Maritime Freight Transport | • Contains 4 of worlds top 50 ports by container volume and 30 large ports overall<br>• Increasing number of containers shipped each year<br>• Over 67 million TEU of container traffic in North America in 2021 |
| Rail Freight Transport | • Large intermodal transport network in North America. Some terminals are almost 3km in length and cover over 2.5km$^2$<br>• Over 140,000 miles of freight railway in USA<br>• 1,182 train derailments in USA in 2022<br>• Canada – 20,000 miles of railtrack and 14 intermodal terminals<br>• USA – 1,616 million tonnes of freight moved by rail in 2017 |
| Road Freight Transport | • USA – 12,800 million tonnes of freight moved by road in 2017<br>• USA – Freight tonnages expected to increase by 1.4% annually until 2050 |
| Plastic Recycling | • More than 249 recycling plants<br>• USA has worlds third highest number of recycling plants |

## Environmental Incidents

It is estimated between 6,125-60,72 tonnes of plastic pellets are lost annually in North America. In addition to widespread pellet pollution identified via citizen science this review has identified 10 acute and 8 chronic pellet losses in US and Canada between 2005 and 2022. 70% of the acute losses occurred during transport by rail with four of these train derailments. One maritime and two road-based losses were also identified.

Six of the identified chronic losses were related to plastics industry production/conversion facilities with two related to ongoing losses in relation to rail transport.

With increased regulation and transparency of all the sectors within the plastic industry across the region, there would be an increase in the amount of reported chronic and acute pollution which would highlight the true extent of the issue.

# Environmental Sensitivity

Extensive plastic industry activity is located around the Gulf of Mexico with a number of primary plastic production plants located close to the coast in Texas, USA. The Gulf coast has over 112,000 km2 of protected areas with the area containing around half the US total of coastal wetlands and home to extensive sea grass ecosystems off the coast of Florida, the primary habitat for manatees, a species listed as vulnerable on the IUCN Red List due to their decreasing population[1].

An assessment of the plastic pellet (nurdle) hunt data in the Gulf of Mexico identified that 22.5% of the nurdles found were located within protected areas. Of the acute and chronic losses detailed above, two chronic and four acute spills occurred in Texas with a further two acute spills in Louisiana. Data shows clear impacts along the coastline in close proximity to plastics industry and ports which is leading to pellet pollution within protected areas.

Caribbean Coral reefs account for around 9% of the worlds coral reefs spanning 38 countries[2] with reef-building corals in the region declining by 50% since the late 1970s[3]. Pellet losses in this region could further impact an already fragile, and declining, ecosystem which is under pressure from climate change and rising sea temperatures.

A large number of inland protected areas also exist within North America and are likely crossed by remote sections of road and rail networks where a response to a spill incident may be very challenging.

# Socio-Economic Sensitivity

A number of island nations in the Caribbean Sea generate a significant proportion of their GDP from tourism such as Jamaica (9.2% of GDP in 2018) and Antigua and Barbuda (14.6% of GDP in 2019). A spill incident in the Gulf of Mexico could significantly impact their economies if coastal resorts are damaged. The Caribbean coral reefs are also relied upon by tens of millions of people for their livelihoods through activities such as fishing and tourism.

Florida is the second most visited US state by tourists and large numbers of nurdles have already been identified along its coast. The states high reliance on tourism and the surrounding protected areas mean that significant acute pellet loss could be very damaging to the area, both environmentally and economically.

Mexico has a large tourism industry employing around 1 in 10 people in a sector which continues to rebound post-Covid[4]. Nurdle hunt data shows a large number of pellet locations along the Gulf and Caribbean coasts close to the popular Yucatan Peninsular, home to the city of Cancun.

[1] Deutsch, C.J., Self-Sullivan, C. & Mignucci-Giannoni, A. (2008). Trichechus manatus. The IUCN Red List of Threatened Species 2008: e.T22103A9356917. https://dx.doi.org/10.2305/IUCN.UK.2008.RLTS.T22103A9356917.en

[2] Jackson JBC, Donovan MK, Cramer KL, Lam VV (editors). (2014) Status and Trends of Caribbean Coral Reefs: 1970-2012. Global Coral Reef Monitoring Network, IUCN, Gland, Switzerland. Available at: https://www.iucn.org/sites/default/files/import/downloads/caribbean_coral_reefs___status_report_1970_2012.pdf [Accessed on 28/07/23]

[3] Cramer, K. L., Jackson, J. B. C., Donovan, M. K., Greenstein, B. J., Korpanty, C. A., Cook, G. M., & Pandolfi, J. M. (2020). Widespread loss of Caribbean acroporid corals was underway before coral bleaching and disease outbreaks. Science Advances, 6(17). https://doi.org/10.1126/sciadv.aax9395

[4] World Travel & Tourism Council. (2022). Mexico. Available at: https://wttc.org/DesktopModules/MVC/FactSheets/pdf/704/161_20220613164803_Mexico2022_.pdf [Accessed on 28/07/23]