

Central and South America

Production, Transport & Recycling Activity



Activity	Observations
Plastic Production	<ul style="list-style-type: none"> • The region contributed 4% of world plastic production in 2021 • The region accounted for 1.72% of world trade exports of plastics in primary forms in 2021 • Brazil was the largest importer and exporter of plastics in primary forms in 2021 in the region. Colombia was the second largest exporter of plastics in primary forms in 2021
Plastic Manufacturing	<ul style="list-style-type: none"> • The region accounted for 5% of world trade imports of plastics in primary forms in 2021 • Peru was the second largest importer of plastics in primary forms in 2021 in the region after Brazil • The total value of imports and exports in the region in 2021 was 14.6 billion USD
Maritime Freight Transport	<ul style="list-style-type: none"> • 12 large ports as defined by World Ports Index • 2 of the world's top 50 container ports by cargo volume are present in the region • In 2021, the port of Colón, Panama, handled the highest volume of cargo containers in Latin America and the Caribbean, at approximately 4.92 million TEUs. The port of Santos, in Brazil, followed with 4.44 million TEUs of cargo.
Rail Freight Transport	<ul style="list-style-type: none"> • In Brazil rail accounted for 15% of freight transport in 2015 • Argentina has the largest rail network in South America at around 47,000 km.
Road Freight Transport	<ul style="list-style-type: none"> • In Brazil roads accounted 65% of freight transport in 2015
Plastic Recycling	<ul style="list-style-type: none"> • Over 198 plastic recycling plants (7% of global share based on industry database) • The region dealt with 3% of world trade in plastic manufacturing waste in 2021 • Brazil – 57% of recycling plants identified in the region located in Brazil

Environmental Incidents

Using recorded pellet presence data from Fidra's Great Nurdle Hunt, there is a slight positive correlation between the locations of pellets and the location of the plastics industry across the region, with potential pellet hotspots identified in Brazil, Argentina, Chile and Peru. This suggests there could be chronic pellet pollution issues yet to be fully investigated in the region. It is estimated that between 1,673 to 16,584 tonnes of plastic pellets could be lost annually in this region alone. There is one record of chronic pellet loss in the region, in Brazil, where accumulation zones of pellets in sandy beaches along the eastern coastline within the São Paulo region, the source is unknown and undeclared. There is likely to be further unrecorded chronic loss sites in region due to the presence on plastics industry.

There are no recorded acute spills across Central & South America that have been identified within this review. Whilst some of the region have plastic associations affiliated with Operation Clean Sweep, this is limited to Argentina, Brazil, Chile, Colombia and Guatemala, the majority >70% are not committed to any measures to prevent pellet pollution at source¹. Overall data was difficult to find for the region, accessibility to information due to authors' language barriers, as well as limited requirements for industry to share information is likely to have limited access therefore the full extent of pellet loss within this region is largely unknown.

Given the information known about the scale of the industry in these regions and the potential for pellet loss to occur during transport, handling and storage, it should be expected that more chronic and acute losses would be identified with clearer transparency and reporting of these incidents. However, there is limited understanding of what plastic pellets are within the region and current legislation is being driven by waste management issues, with a focus on single use plastic in the region.

Environmental Sensitivity

There is a large concentration of the plastics industry in the Sao Paulo region of Brazil, and there are also a large number of marine and terrestrial protected areas in this region with 7% designated as protected areas which could be highly sensitive to a nurdle spill incident. Research on the impact of pellet consumption by wildlife is on the rise in the region^{3,4,5}. There are environmentally sensitive sites across much of the region's coasts with mangroves extending over large distances of the coasts of Peru, Venezuela, Colombia and Brazil including areas of these countries with large concentrations of the plastics industry. The North of the region may also be at risk from the Americas to Europe trade routes transporting plastic.

Socio-Economic Sensitivity

In 2019, pre-Covid, Brazil was the world's 52nd most popular tourist destination with 6.4 million visitors and accounts for 3.1% of its GDP, 2.1 million jobs. Plastic spill incidents are likely to have localised impacts on those economies with less dependence on tourism, while in other countries that rely more heavily on tourism such as Jamaica (9.2% of GDP in 2018) and Antigua and Barbuda (14.6% of GDP in 2019), the effects of a spill incident could have a significant effect on their national economy.

It was not possible to determine the impacts of pellet pollution on the fishing industry in the region due to lack of data and research on this topic but as demonstrated in the Acute Spill Case Study and other maritime acute spills, these incidents have been known to impact fisheries with as yet unknown and unquantified health impacts. Similarly, accumulations of pellets can limit a community's access and enjoyment of the environment which may impact wellbeing, local traditions and access to coastal space used for local industry.

Whilst the risks to wildlife are often more direct and immediate from pellet spills, there are human health risks associated with plastic pellet pollution (due to the biological and chemical cocktail on pellets and the ability of microplastics to degrade and concentrate up food chains), however, there is a lack of data to determine human health implications specific to this region.

¹ Operation Clean Sweep. International OCS Programs. Available at: <https://www.opcleansweep.org/operation-clean-sweep-around-the-world/> [Accessed on: 28/07/23]

² Baldi, G., Schauman, S., Teixeira, M., Marinaro, S., Martin, O. A., Gandini, P., & Jobbágy, E. G. (2019). Nature representation in South American protected areas: country contrasts and conservation priorities. *PeerJ*, 7, e7155. <https://doi.org/10.7717/peerj.7155>

³ Orona-Návar, C., García-Morales, R., Loge, F. J., Mahlkecht, J., Aguilar-Hernández, I., & Ornelas-Soto, N. (2022). Microplastics in Latin America and the Caribbean: A review on current status and perspectives. *Journal of Environmental Management*, 309, 114698. <https://doi.org/10.1016/j.jenvman.2022.114698>

⁴ Gamarra-Toledo, V., Plaza, P. I., Peña, Y. A., Bermejo, P. A., López, J., Cano, G. L., Barreto, S., Cáceres-Medina, S., & Lambertucci, S. A. (2023). High incidence of plastic debris in Andean condors from remote areas: Evidence for marine-terrestrial trophic transfer. *Environmental Pollution*, 317, 120742. <https://doi.org/10.1016/j.envpol.2022.120742>

⁵ Diaz-Santibañez, I., Clark, B. L., & Zavalaga, C. B. (2023). Guanay cormorant (*Leucocarbo bougainvilliorum*) pellets as an indicator of marine plastic pollution along the Peruvian coast. *Marine Pollution Bulletin*, 192, 115104. <https://doi.org/10.1016/j.marpolbul.2023.115104>