



Photos courtesy of National Aquarium (top, bottom), and Shedd Aquarium (middle).

## The Aquarium Conservation Partnership (ACP)

# The Impacts of Plastic Pollution on Aquatic Wildlife and Ecosystems

## Fact Sheet

Plastic pollution in the ocean, rivers, and lakes negatively affects aquatic animals and ecosystems in the U.S. and around the world. As the volume of plastic pollution increases each year, so will the frequency of these impacts on marine and freshwater wildlife.

**Plastic pollution impacts marine animals through entanglement and ingestion.** Nearly 700 species of marine animals have been impacted by marine trash, most of which is plastic.<sup>1</sup> Plastic accounts for 92 percent of all encounters between marine animals and marine trash.<sup>2</sup>

Plastic pollution has impacted:<sup>3</sup>

- All known species of sea turtles.
- 54 percent of marine mammal species, including whales, dolphins and porpoises.
- 56 percent of seabird species.

Over 99 percent of all seabird species—and over 90 percent of all individual seabirds—will have ingested plastic by 2050.<sup>4</sup>

Entanglement impacts include drowning, suffocation, and lacerations.<sup>5</sup> Ingestion impacts include starvation due to gut obstruction and reduced fitness.<sup>6</sup>

### For more information

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1 S.C. Gall, R.C. Thompson, *The impact of debris on marine life*, Mar. Pollut. Bull., 2015, <http://www.sciencedirect.com/science/article/pii/S0025326X14008571>

2 Gall and Thompson

3 Gall and Thompson

4 C. Wilcox, E. van Sebille, B.D. Hardesty, *Threat of plastic pollution to seabirds is global, pervasive, and increasing*, Proc. Natl. Acad. Sci., 2015, <http://dx.doi.org/10.1073/pnas.1502108112>

5 Gall and Thompson

6 Gall and Thompson



Photo courtesy of National Aquarium

Juvenile marine animals are at higher risk of negative impacts from plastic pollution than their adult counterparts.<sup>12</sup>



Photo courtesy of National Aquarium

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Another concerning consequence of ingestion is that the chemical constituents of plastic, as well as the toxins they absorb in the aquatic environment, can concentrate and climb the food chain and end up in seafood for human consumption.<sup>7</sup>

Of the most commonly found plastic pollution on beaches, plastic bags and balloons pose considerable entanglement risk to marine animals, while plastic food packaging, straws and utensils pose a high risk of ingestion.<sup>8</sup>

**Juvenile marine animals are at higher risk of negative impacts from plastic pollution than their adult counterparts.**<sup>9</sup> These impacts are particularly significant for the 17 percent of species affected by plastic pollution that are also listed as near threatened, vulnerable, endangered or critically endangered by the IUCN.<sup>10</sup>

**Of particular concern are plastic fragments less than 5 mm in size, known as microplastic, which are either manufactured at this size or created when larger plastic items break down into smaller pieces.**<sup>11</sup> Their small size enables microplastic to enter the food chain at the lowest trophic levels.<sup>12</sup> Microplastic has been found in the digestive tracts of both marine and freshwater species.<sup>13</sup>

Reducing sources of plastic pollution is essential for reducing risks posed by plastic entanglement and ingestion to the health of aquatic animals and ecosystems.

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8 Gall and Thompson

9 W.C. Li, H.F. Tse, L. Fok, *Plastic waste in the marine environment: A review of sources, occurrence and effects*, Sci Total Env., 2016. <http://dx.doi.org/10.1016/j.scitotenv.2016.05.084>

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11 NOAA Marine Debris Program, *Microplastic Marine Debris*, [https://marinedebris.noaa.gov/sites/default/files/MicroplasticsOnePager\\_0.pdf](https://marinedebris.noaa.gov/sites/default/files/MicroplasticsOnePager_0.pdf)

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**About the ACP**

The Aquarium Conservation Partnership (ACP) is a first-of-its-kind collaboration of 19 U.S. aquariums that have joined together to take collective action on science-based ocean and freshwater conservation priorities.