Plastic Pellets
In The Aquatic Environment
Sources And Recommendations

Final Report
ingest pellets. Pellets ingested by seabirds are suspected to cause false feelings of satiation (i.e., the birds feel as though they have eaten) and reduce the feelings of hunger. Ultimately, this may result in a decrease in energy reserves and the ability to survive adverse environmental conditions. Suspected impacts on sea turtles, fish, and other aquatic life have been less frequently reported and studied.

Although pellets may not be as esthetically displeasing as other items of debris, such as sewage- and medical-debris, the quantities present and their persistence in the environment are cause for notice. One investigator went so far as to suggest that, if high numbers of pellets continue to be deposited on certain beaches, someday people may be sunbathing on plastic-sand beaches instead of natural-sand beaches.

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THE PLASTICS INDUSTRY

The Society of the Plastics Industries, Inc. (SPI), worked with EPA to develop an understanding of operations within the plastics industry and identify potential sources of pellet losses to the environment. SPI is the major national trade association of the plastics industry. Its membership consists of more than 2,000 companies that are responsible for approximately 75% of the $100 billion total sales of plastics and plastic products in the United States. These companies supply raw materials (e.g., pellets); manufacture plastics and plastic products; and design, construct, and manufacture equipment and machinery used by the plastics industry. This study was completed with the voluntary cooperation and assistance of SPI and seven companies in the plastics industry.

For the purposes of the study, the plastics industry was divided into three major sectors.

- **Pellet producers**, which create the polymers, form the pellets, and ship the pellets to contract packagers or processors.
- **Pellet transporters/contract packagers**, which are intermediate pellet handlers. Transporters carry bulk shipments between the industry sectors via railcars, bulk trucks, and freight trucks. Contract packagers repackage bulk shipments into smaller containers (e.g., bags and cardboard boxes), which are shipped to processors.
- **Pellet processors**, which mold the pellets into user products.

To determine how pellets are released to the environment from each of these three sectors, SPI arranged for each industry sector to be visited by the study team. Seven companies (two producers, two transporters/contract packagers, and three processors) were visited during this study.

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STUDY FINDINGS

Several pellet release pathways were identified for each of the three industry sectors described above. Most of the release pathways were common to all three sectors, with only a few being unique to one or two sectors. The pathways may be categorized into eight general areas where pellet releases are a problem.

- **Poor communication between industry management, company management, and management of related industries (e.g., shipping industry).** Not all company managers have recognized the pellet problem and the need to control pellet releases. Pellet spillage information, such as the condition of packages and the receipt of unsealed