

Reimagining Florida's Plastic Policies and Co-Developing Management Alternatives

Melinda Paduani

 <https://orcid.org/0009-0006-8639-737X>

Institute of Environment, Department of Earth and Environment, Florida International University, USA

ABSTRACT

The pervasiveness of plastics in society has resulted in diffuse policies to reduce plastic pollution. This patchwork makes identifying comprehensive management opportunities extremely challenging. Progress is further hindered by plastic regulation preemptions in several states, including Florida. To help clarify this ill-defined field, Florida policies in plastic management and regulatory frameworks that could be relevant are reviewed. This review provides context for a case study generating management alternatives for reducing plastic pollution including microplastics (plastics < 5 mm in size) in Miami-Dade County, Florida, USA. Stakeholders in waste management, water management, and the Everglades restoration were interviewed. Of six alternatives, creating a regional recycling cooperative and developing Best Management Practices guidelines for microplastics ranked the highest according to three policy analysis criteria: 1) effectiveness, 2) benefit and engagement of society, and 3) cost. This study fosters policy innovation in regions where plastic management is politically contentious.

KEYWORDS

Best Management Practices, Biscayne Bay, Everglades Restoration, Key Informant Interviews, Marine Debris, Microplastic, Plastic Pollution, Policy Analysis, Preemption, Waste Management, Water Quality

1. INTRODUCTION

Globally, legislation has emerged to reduce unsightly marine debris. Plastic is the most common and abundant component of marine debris (Ocean Conservancy & International Coastal Cleanup, 2021; Serra-Gonçalves et al., 2019), and widespread mismanagement of plastic waste is contributing to rising concern about the issue. Microplastics (“MPs”, < 5 mm in size) are less conspicuous than larger debris, yet they pose a more insidious threat at all levels of the food chain. International management of plastic pollution initially focused on marine-based debris, including the London Convention, International Convention for the Prevention of Pollution from Ships (MARPOL), United Nations Convention on the Law of the Sea (UNCLOS), MARPOL Annex V, and Honolulu Strategy (Agamuthu et al., 2019); the latter and the Basel Convention on the Control of Transboundary Movements of Hazardous Waste and their Disposal also address land-based debris (Guggisberg, 2024). Currently, negotiations within the United Nations are ongoing to finalize an internationally binding instrument on plastic pollution including MPs (“Global Plastics Treaty”). This treaty is highly anticipated within the marine debris community, which looks forward to progress via enforceable reductions in the flow of plastic waste into the oceans. Potential enforceable mechanisms in the draft treaty include banning certain hazardous chemicals and intentionally added MPs in plastic products, eliminating problematic, avoidable single-use plastics, recycled content requirements, and Extended Producer Responsibility

DOI: 10.4018/IJPPHCE.377131

This article published as an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0/>) which permits unrestricted use, distribution, and production in any medium, provided the author of the original work and original publication source are properly credited.

systems (United Nations Environment Programme, 2024). However, reduction measures are in short supply compared to the steadily increasing manufacture and distribution of plastic products (da Costa et al., 2020; Gourmelon, 2015).

National plastic bans, bottle return deposits, and regulations on marine debris have been implemented around the world (Agamuthu et al., 2019; Rose, 2020; Xanthos & Walker, 2017). Other federal frameworks in the United States also offer opportunities for addressing different aspects of plastic pollution, such as the Commerce Clause (King, 2019), zoning ordinances (Watts, 2022), or the Toxic Substances Control Act (TSCA) (for detailed discussions of additional policies and proposed modifications of plastic waste-related regulations at the USA federal level that are not covered in this review, readers are referred to Sorensen et al. (2022), The National Academies of Sciences Engineering and Medicine (2022), and Environmental Law Institute & Monterey Bay Aquarium (2024)). However, shortcomings of plastic intervention policy at national, regional, or state levels may in part be attributed to inconsistent implementation within and between jurisdictions (Dauvergne, 2018; Guggisberg, 2024; Wang et al., 2022). Recycling is a quintessential example of this discontinuous management issue. In the US, recycling is largely decentralized with general federal guidance to encourage state recycling programs (see the Draft National Recycling Strategy; US Environmental Protection Agency, 2020). Thus, recycling programs vary widely between states, and accepted materials for collection vary even between counties and cities, as is the case in the State of Florida.

Florida is an interesting case for discussion of plastic policy because of its environmental setting. The entire state is categorized as a coastal zone according to the Coastal Zone Management Act (16 U.S.C. §§ 1451 – 1465), therefore marine debris and protection of coastal activities are especially pertinent management issues. Because of the large number of boaters in the state and more than 12,000 square miles of water cover (US Census Bureau, 2023), fishing-related debris is a significant portion of the statewide total (Ocean Conservancy & International Coastal Cleanup, 2021; Paduani et al., 2024). The state also has a waste generation rate twice the national average, likely due to the contribution of tourists and other transient populations (National Oceanic and Atmospheric Administration, 2020). Between 2013 and 2020, the mass of plastic trash collected in Florida clean-ups conducted by the Ocean Conservancy ranged from 3,375 to 10,509 lbs annually (Ocean Conservancy & International Coastal Cleanup, 2021). In 2020 alone, it is estimated that 6,863 tons of plastics entered Florida's marine environments (Townsend et al., 2021).

Emergent water pollutants like MPs are a persistent threat to ecological health in Florida and weaken the resilience of water governance (McAfee et al., 2023). MPs have been documented in waterbodies across the state, ranging from 1.42 ± 0.10 MPs/L (Walters et al., 2022) to 76,000 MPs/L (Badylak et al., 2021), and accumulate in sediments (Banquero et al., 2022), oysters (Walters & Craig, 2021), snails (Kleinschmidt & Janosik, 2021), and birds (Carlin et al., 2020; Clark et al., 2022). Because of the widespread nature of MPs in Florida, they may also undermine ecological restoration. The Biscayne Bay and Southeastern Everglades Ecosystem Restoration project (BBSEER) is a collection of hydrological restoration projects within the broader Comprehensive Everglades Restoration Plan (CERP) with the objective of reestablishing natural water flows and ecosystem functioning to Biscayne Bay, an estuary receiving drainage waters from metropolitan Miami (U.S. Army Corps of Engineers & South Florida Water Management District, 2020). In addition to infrastructural modifications to the region's canal system and reduction of nearshore salinity in the Bay, control of pollutants conveyed to the estuary is imperative to achieve the goals of BBSEER. However, MPs are not currently monitored by local governments in Biscayne Bay and therefore their impacts on water quality are not considered. With scientists and stakeholders from various sectors warning of ecological collapse in Biscayne Bay (Biscayne Bay Task Force, 2020), monitoring plastic pollution is necessary for ensuring the health of the Bay across the trophic levels.

Regulating plastic products to reduce pollution is politically contentious in Florida. As of June 2023, Florida is one of 19 states to enact preemptions on local-level regulation of single-use, food-related plastic packaging and bags (Surfrider Foundation, 2023). These preemptions are

30 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: www.igi-global.com/article/reimagining-floridas-plastic-policies-and-co-developing-management-alternatives/377131

Related Content

E-Government in Public Administration in Africa: Systemic Impediments and Perspectives

Guy-Maurille Massamba (2015). *Public Affairs and Administration: Concepts, Methodologies, Tools, and Applications* (pp. 1506-1522).

www.irma-international.org/chapter/e-government-in-public-administration-in-africa/127920

Crowdsourcing in Local Public Administration: Importance of Online Platforms

Kalsoon BeBe Sumraand Wang Bing (2019). *Crowdsourcing: Concepts, Methodologies, Tools, and Applications* (pp. 1302-1318).

www.irma-international.org/chapter/crowdsourcing-in-local-public-administration/226792

Communicative Mechanisms of Governance: E-Democracy and the Architecture of the Public Sphere

Lori Andersonand Patrick Bishop (2011). *Information Communication Technologies and the Virtual Public Sphere: Impacts of Network Structures on Civil Society* (pp. 52-71).

www.irma-international.org/chapter/communicative-mechanisms-governance/52475

Social Work During COVID-19 and the Role of Local Governments in Managing the Crisis of the Pandemic: Case of Istanbul

hsan kizer (2021). *Handbook of Research on Policies, Protocols, and Practices for Social Work in the Digital World* (pp. 211-236).

www.irma-international.org/chapter/social-work-during-covid-19-and-the-role-of-local-governments-in-managing-the-crisis-of-the-pandemic/279545

Reputation and Legitimacy: A Comparative View of Three Municipal Enterprises in Finland

Päivikki Kuoppakangas, Kati Suomiand Khim Horton (2013). *International Journal of Public and Private Healthcare Management and Economics* (pp. 1-17).

www.irma-international.org/article/reputation-and-legitimacy/96885