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**Table 1**: Summary of baseline data available for monitoring the amounts, types and impacts of marine plastics off South Africa (including the Prince Edward Islands), giving date of first data collection, and challenges to use of these data for monitoring

| Environmental compartment | Baseline data available | Challenges to and opportunities for monitoring and size class |
|---|---|---|
| **Floating at sea surface** | | |
| Macroplastics | Aerial survey, Western Cape, 1985[1] | Limited baseline (only 1 sample from 2 sites); high cost; drones/satellites may be viable in future |
| | Ship-based transects, 2013–2019[2-4,a] | High spatial heterogeneity; short baseline; limited data; reliance on ships of opportunity limits replication of effort |
| Mesoplastics | Net surveys, 1970s[1,5] | High spatial/temporal heterogeneity; high cost |
| | Net surveys, 2016–2019[4,6,a] | High spatial/temporal heterogeneity; high cost |
| Microplastics | Bulk water surveys, 2017–2019[7,8] | Identification of fibres; risk of contamination; high within-site variability; high spatial/temporal heterogeneity |
| **Suspended in water column** | No baseline data (but see Suaria et al.[7]) | Sampling challenges; low densities; high heterogeneity |
| **On the sea floor** | | |
| Macroplastics | SCUBA survey (False Bay), 1991[9,10] | Low plastic densities; temporal heterogeneity |
| | Benthic trawl survey, 2019[11] | Short baseline; takes advantage of regular fishery surveys |
| | ROV surveys, 2013–2019[b] | Low litter densities; takes advantage of biodiversity surveys |
| Mesoplastics | No baseline data | Sampling challenges; high spatial heterogeneity |
| Microplastics | Durban Harbour, 2012[12] | Limited baseline (only 1 sample from 1 site); identification |
| **Stranded on beaches** | | |
| Macroplastics | Standing stock surveys, 1984[10,13-16,a,c] | Easy to collect, but limited understanding of turnover rates; exhumed litter and increase in cleaning effort over time |
| | Accumulation surveys, 1994[17-20,a] | Labour intensive; exhumed litter |

| Environmental compartment | Baseline data available | Challenges to and opportunities for monitoring and size class |
|---|---|---|
| Mesoplastics | Standing stock surveys, 1984[13,21,a] | Little understanding of turnover rates |
| Microplastics | Standing stock surveys, 2014[22-25,a] | Little understanding of turnover rates |
| **Interactions with biota** | | |
| Entanglement | Seals, 1970s–1990s[26-28,d] | Rare events; requires large sample sizes to detect change |
| | Sharks, 1978–2000[28,29] | Rare events; requires large sample sizes to detect change |
| | Seabirds, 1980s[28,30,31] | Rare events; requires large sample sizes to detect change |
| | Turtles, 1980s[28,32,33] | Rare events; requires large sample sizes to detect change |
| | Cetaceans, 1980s[28,d] | Rare events; requires large sample sizes to detect change |
| Ingestion | Turtles, 1970s, 2016[28,32-34] | Relies on sampling of animals found dead/killed accidentally |
| | Seabirds, 1970s to 2019[28,35-38,a] | Relies on sampling of animals found dead/killed accidentally |
| | Sharks, 1978–2000[29] | Relies on sampling of animals found dead/killed accidentally |
| | Seals, 1989–2019[38] | Scat samples contain very low levels of plastic ingestion |
| | Other mammals[28] | Relies on sampling of animals found dead/killed accidentally |
| | Bony fish[39,40,e] | Identification of fibres; risk of contamination |
| | Mussels, oysters[e] | Identification of fibres; risk of contamination |
| | Anemones[a] | High temporal and probably spatial variability |
| Other interactions | Plastic in seabird nests, 1992–2000[41,c] | Disturbance to breeding birds |
| | Microplastics in *Gunnarea* tubes[42] | Identification of fibres; risk of contamination |

*[a]FitzPatrick Institute of African Ornithology, unpublished data; [b]Kerry Sink, SANBI, personal communication; [c]Rob Crawford and Azwianewi Makhado, Department of Environment, Forestry and Fisheries, personal communication; [d]Mike Meyer, Department of Environment, Forestry and Fisheries, personal communication; [e]Ronel Nel, Nelson Mandela University, personal communication; [f]UKZN unpublished data*

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