INTRODUCTION

“MICROPLASTICS”

Plastic pieces with largest dimension <5 mm.

Primary microplastics:
• pellets intentionally made for personal care products and released from industrial spillage
• filaments released in effluent from the washing of synthetic clothing

Secondary microplastics:
• fragments and films from breakdown of larger plastic debris

Research on this relatively new topic is evolving rapidly.

DISTRIBUTION AND IMPORTANCE

• found in beach, subtidal, offshore, and deep sea sediments
• not studied in dune sands, rocky shores, salt marshes
• of concern: ingestion by coastal and marine organisms.

METHODS

COLLECT SAMPLES

Standard operating procedure:
• sample surface
• sample subsurface to 5 cm
• 5mm sieve on-site
• collect with metal shovel in paper or foil bag

EXTRACT AND OBSERVE

PRELIMINARY RESULTS

Surface and subsurface samples from three locations examined thus far:
• Race Point beach, Provincetown (12016S, 12016SB)
• Dune blowout, Provincetown parabolic dune field (102016S, 102016SB)
• Coast Guard beach dune, Eastham (62016S, 62016SB)

Five replicates of each sample with three extractions done on each produced 15 filters per sample.

• all samples observed contain microplastic materials.
• filaments occur most frequently, followed by fragments, films, and pellets.

CONCLUSIONS

This initial investigation suggests that microplastic particles:
• are ubiquitous in dune sands of Outer Cape Cod
• may (re)enter the terrestrial realm via landward aeolian transport

FURTHER WORK

This study has just begun and next steps are to:
• Extract microplastics from seven remaining samples from pre-summer tourist season sampling trip.
• Point count for abundance and type.
• Sample dune sites during winter season and investigate as above.

KEY REFERENCES


