Nurdle Nabber: Removing Microplastics from Beaches

What are Nurdles?

Nurdles!

Tiny plastic pellets produced by plastics manufacturing.

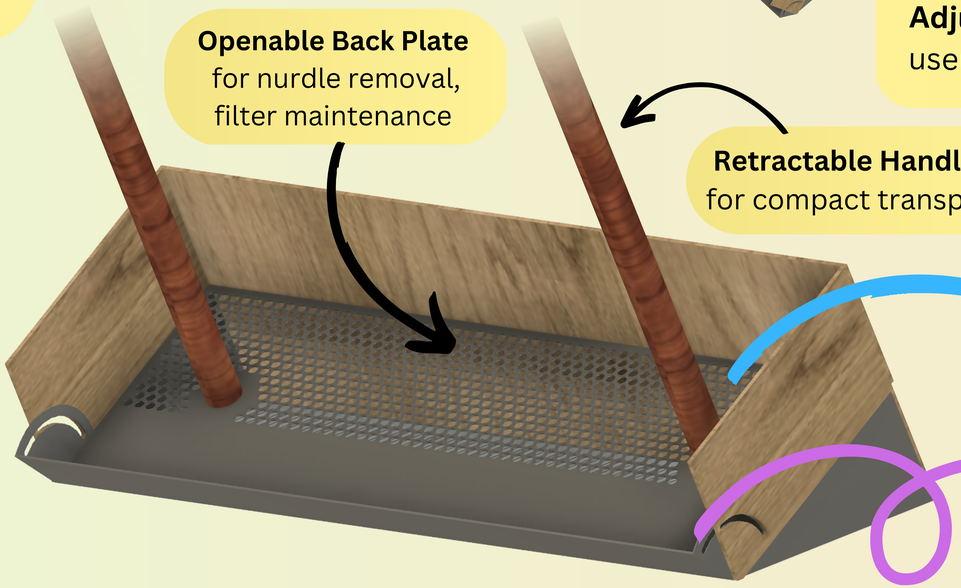
- **2-5 mm** diameter, **flat and circular**
- Most common **microplastic** in and around water bodies
- Risks of pathogen contamination, ingestion by wildlife

The Opportunity

Create a design to **quickly collect nurdles** from **sand beaches** while **minimizing physical strain** on the user and **disturbances to the environment.**

Key Requirements

- Maximize Nurdle Collection **Rate**
- Minimize **Noise** Produced by Design
- Be **Reliable** and **Durable**
- Minimize Time Spent **Squatting/Kneeling**
- Minimize **Force** Applied by User to Operate



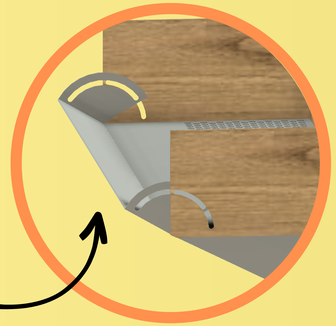
Openable Back Plate for nurdle removal, filter maintenance

Retractable Handles for compact transport

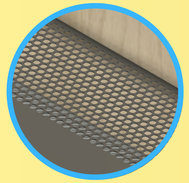
Collection System

1100 sq. cm Shovel; pulled by user, collects on average 3.5 kg of sand per 1.5 m pull

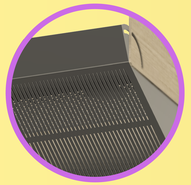
Adjustable Spade for range of user heights, sand densities



Double-Layered Filter

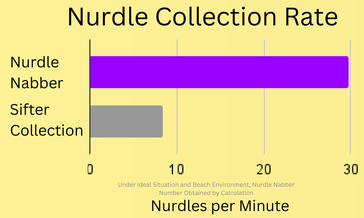


7mm Circular Holes in upper plate block large debris



1.5mm Linear Slots in lower plate trap nurdles, release sand

By The Numbers



3.5X Faster Nurdle Collection Rate

50N Pulling Force for Operation

Negligible Observed Change in Noise Level

>90% of Nurdles Collected on Average