Durban Nurdle Spill, 2017

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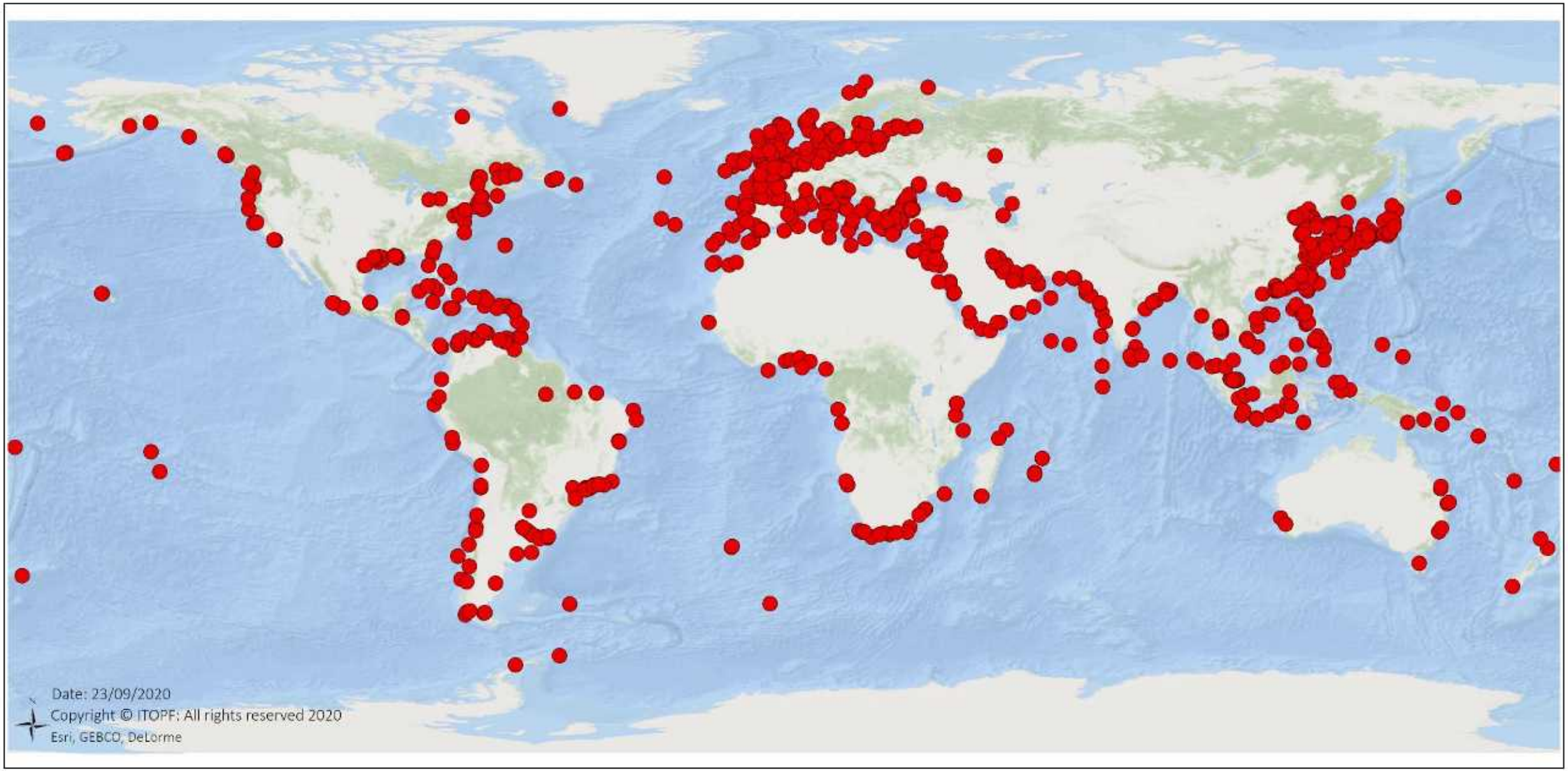
15th February 2021

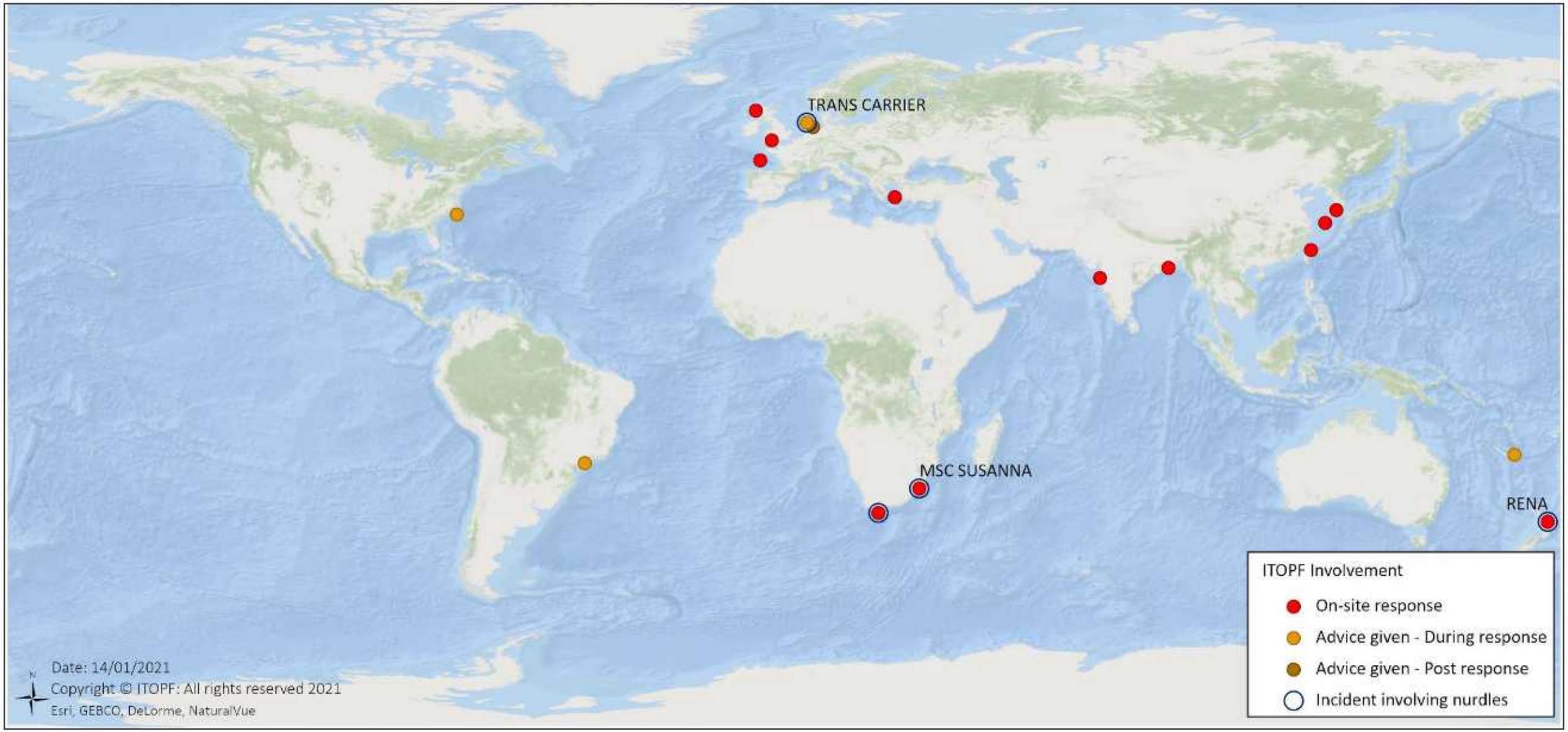
Introduction to ITOPF

- Established in 1968
- Operates on a non-for-profit basis; provide objective technical advice
- Based in London, but with a global remit
- Total team of 34; technical team with 17 responders available 24/7
- Primarily funded by the global shipping industry (annual fee)
  - Members: >97% of the world's ocean going tanker fleet
  - Associates: >90% of the world's ocean going non-tanker fleet

ITOPF – Incidents Attended on Site



ITOPF – Response to Incidents Involving Plastics



2017 Durban Nurdle Spill

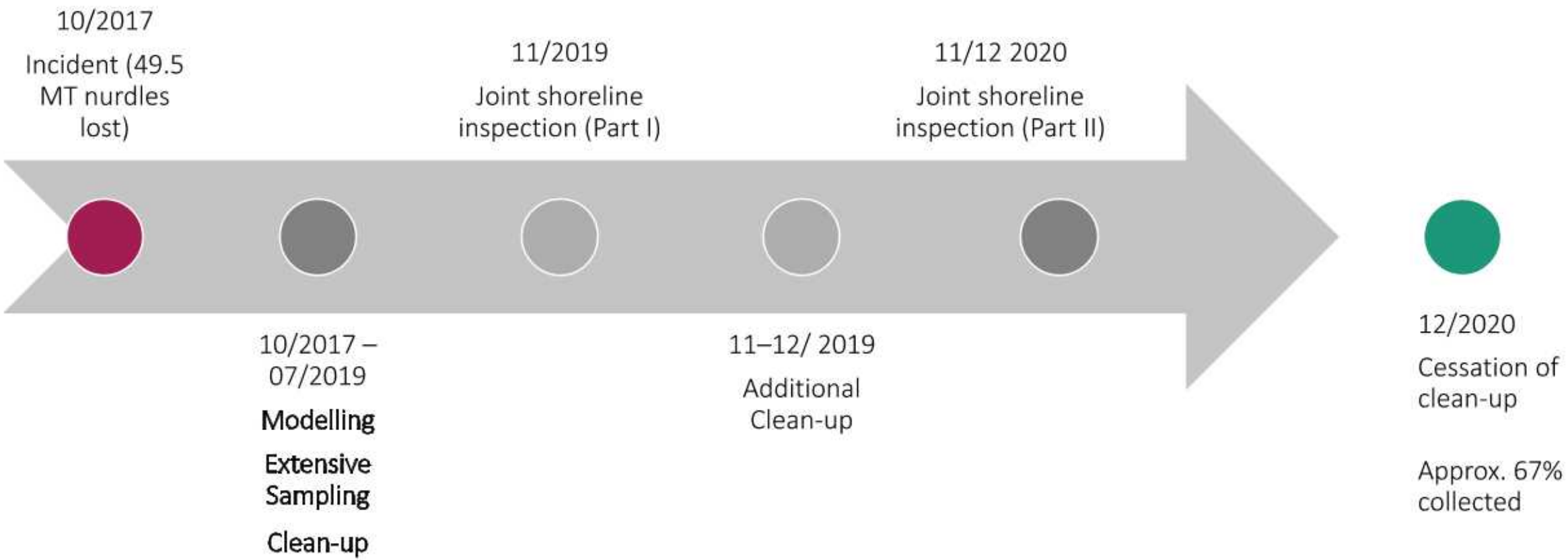
- 10th October 2017, Port of Durban
- Severe storm, which was considered a force majeure
- Two containers carrying nurdles fall overboard

Nurdles

High & Low Density Polyethylene

- Diameter: 5 mm
- Density: 0.91-0.97 g/cm^3 → float
- Transported in 25 kg bags, shrink wrapped onto pallet bases
- Are not considered hazardous as per
  - OSHA Hazard Communication Standard
  - IMDG Code
- But they might be ingested by animals, can adsorb persistent organic pollutants, do not biodegrade

Response Timeline



Modelling

Task: Predicting nurdle movement

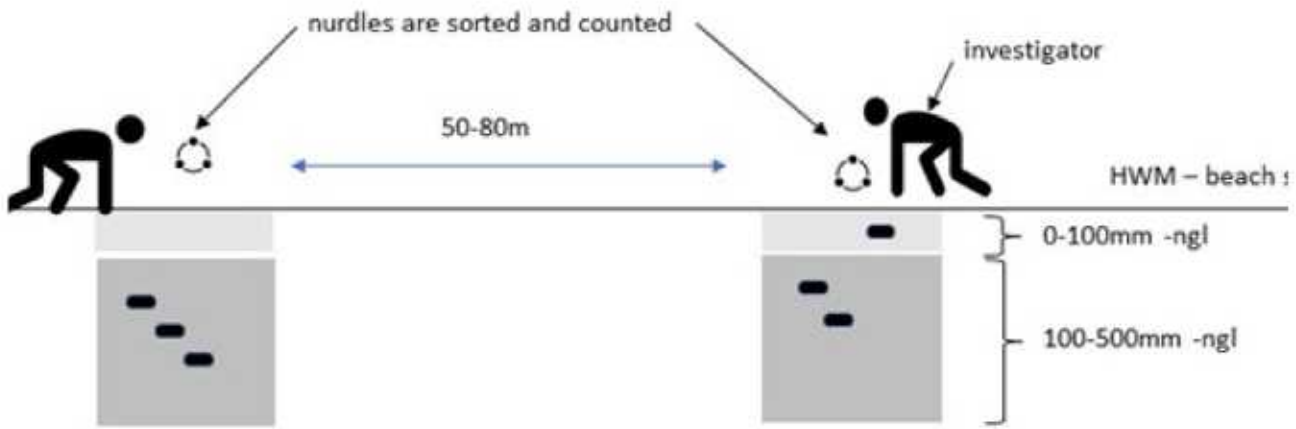
1. Predicted that large deposits of nurdles were likely to be found between Tugela River and Port Dunford ✓
2. local northward coastal migration of nurdles ✓
3. Unlikely that nurdles were to travel further north than Richards Bay ✓

SDP Ecological and Environmental Services

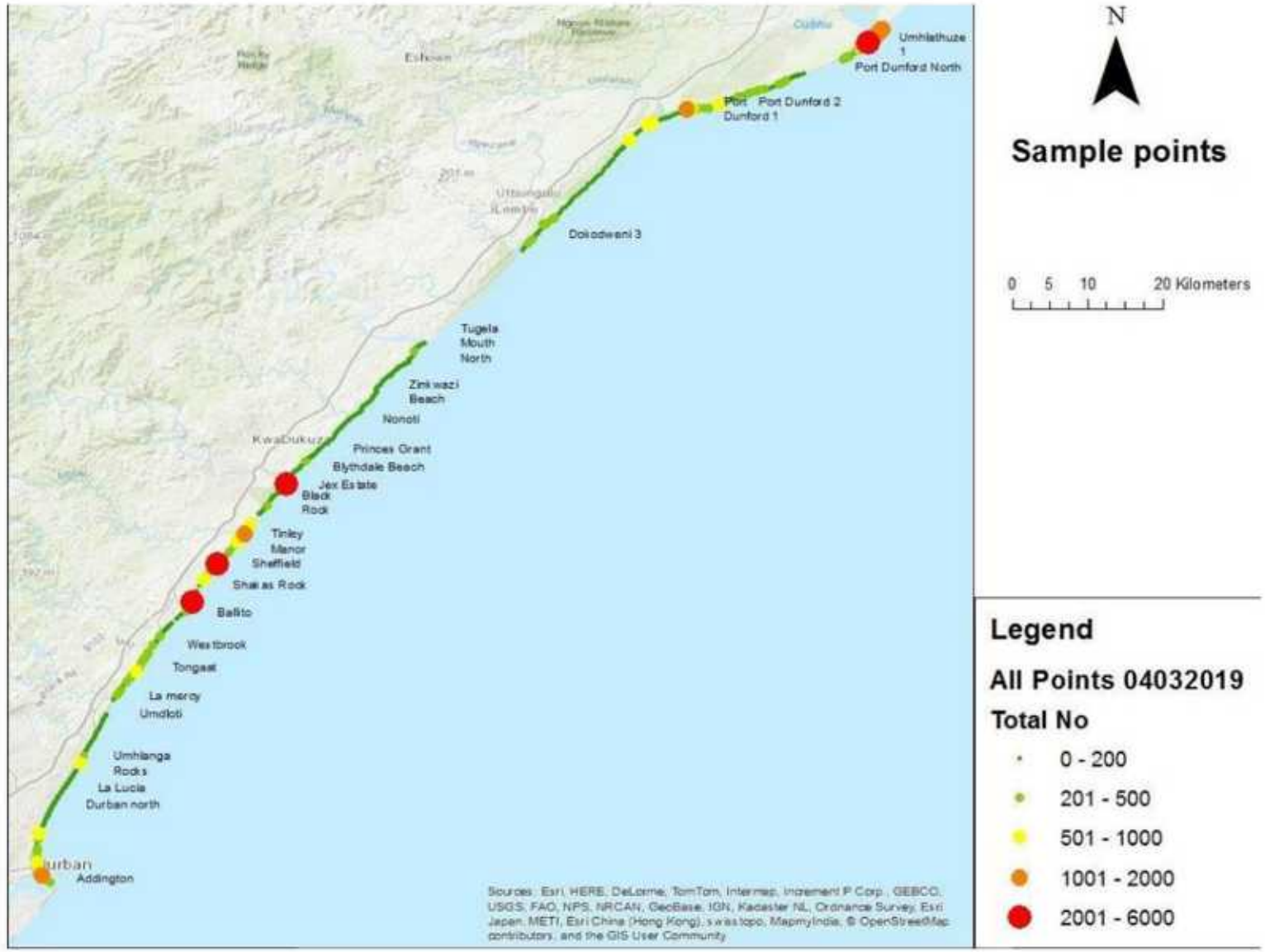
Task 1: Determine points of signification nurdle accumulations between Durban and Richards Bay

Task 2: Nurdle recharge

Task 3: Environmental impact assessment of mechanical recovery at New Mouth



SDP: Extent of Contamination



Source: SDP Ecological and Environmental Services, 2018

SDP: Nurdle Recharge

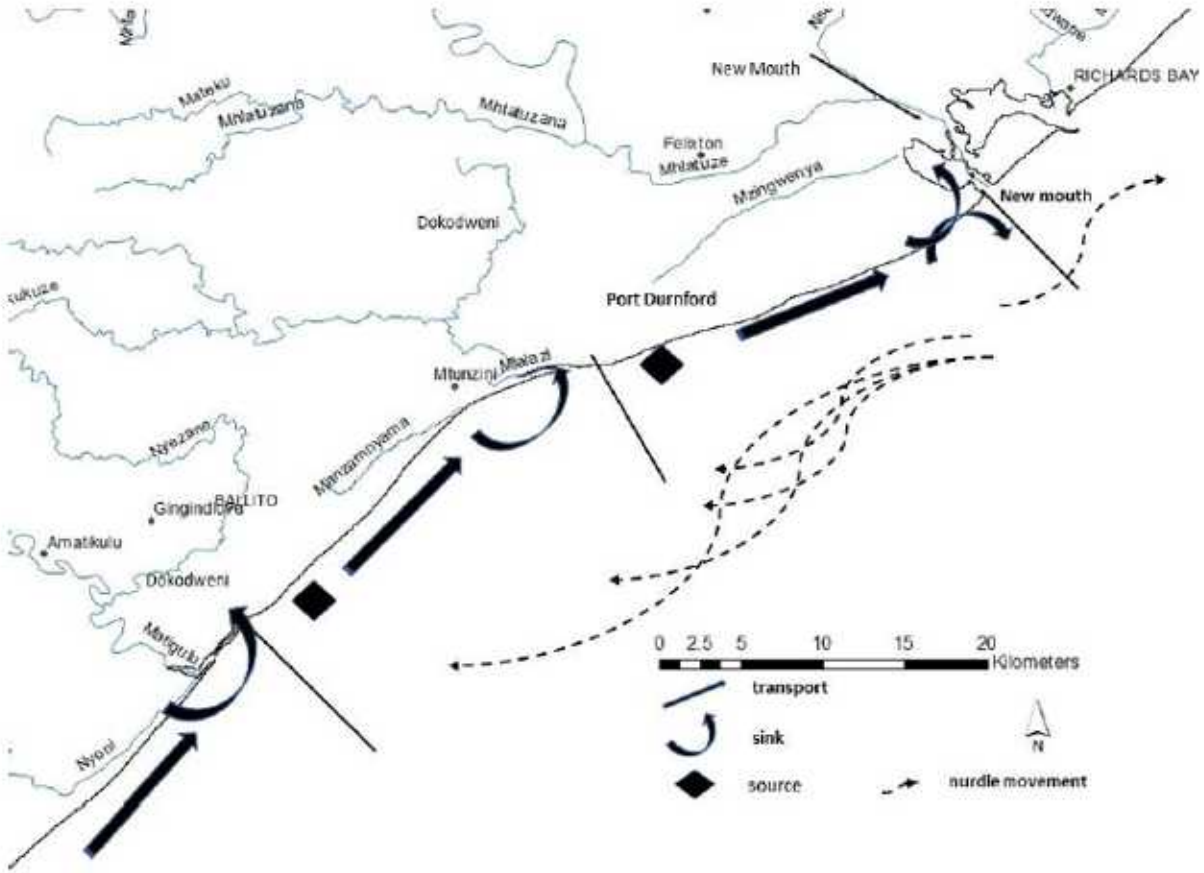


Figure 12. Preliminary model indicating coastal cells along the KZN coastline and the movement of the bulk of nurdles remaining within the Natal Bight

Source: SDP Ecological and Environmental Services, 2018












End points

- In general terms, the goal of every pollution response is to (i) minimize exposure hazards to human health, (ii) speed up the recovery within the impacted areas and, (iii) reduce the threat and/or negative impacts to the environment.
- It was suggested to identify an indicator which will show when as many nurdles as practically possible have been collected → in this case the most applicable measurement was found to be the "g of nurdles collected per worker per day"
- The daily response operations ended in July 2019, but further monitoring was carried out in November 2019 (more clean-up) and December 2020 (cessation of clean up)

Summary

- South Africa's first container nurdle spill response, a lot of valuable lessons have been learnt
- Nurdle spills are challenging to respond to due to the nature of the cargo, but a lot of valuable lessons have been learnt
- Various types of equipment used to accommodate the challenges faced across various types of shoreline: hand tools, such as nets, scoops, sieves, rakes, vacuum systems, leaf blowers, motorized beach cleaners
- Between October 2017 and December 2019, approximately 35.8 MT of nurdles (of 49.5 MT) were collected by > 1,000 workers employed by Drizit / Resolve
- Majority of the collected nurdles were recycled


ITOPF
Thank you for your attention