

Country Case Study: Wakashio Oil Spill in Mauritius

Module 7

Overview

- Grounding of the MV Wakashio
- Environmentally Sensitive Areas (ESAs)
- Sites Affected by Oil Spill
- Clean-up Techniques
- Clean-up Endpoints
- Waste Management

Case study location



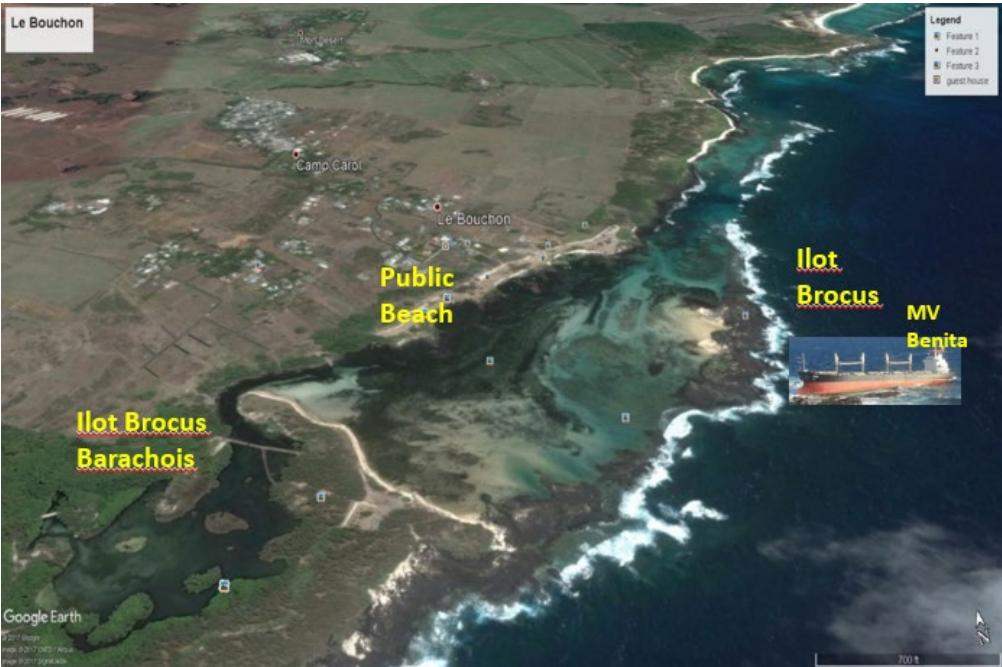
Past incident

MV Angel in August 2011



Past incident

MV Benita in July 2016



Vessel had onboard around 145 MT HFO (380 CST), 42 MT diesel oil and 19 000 L Lube Oil.



Recent incident

MV Wakashio in July 2020



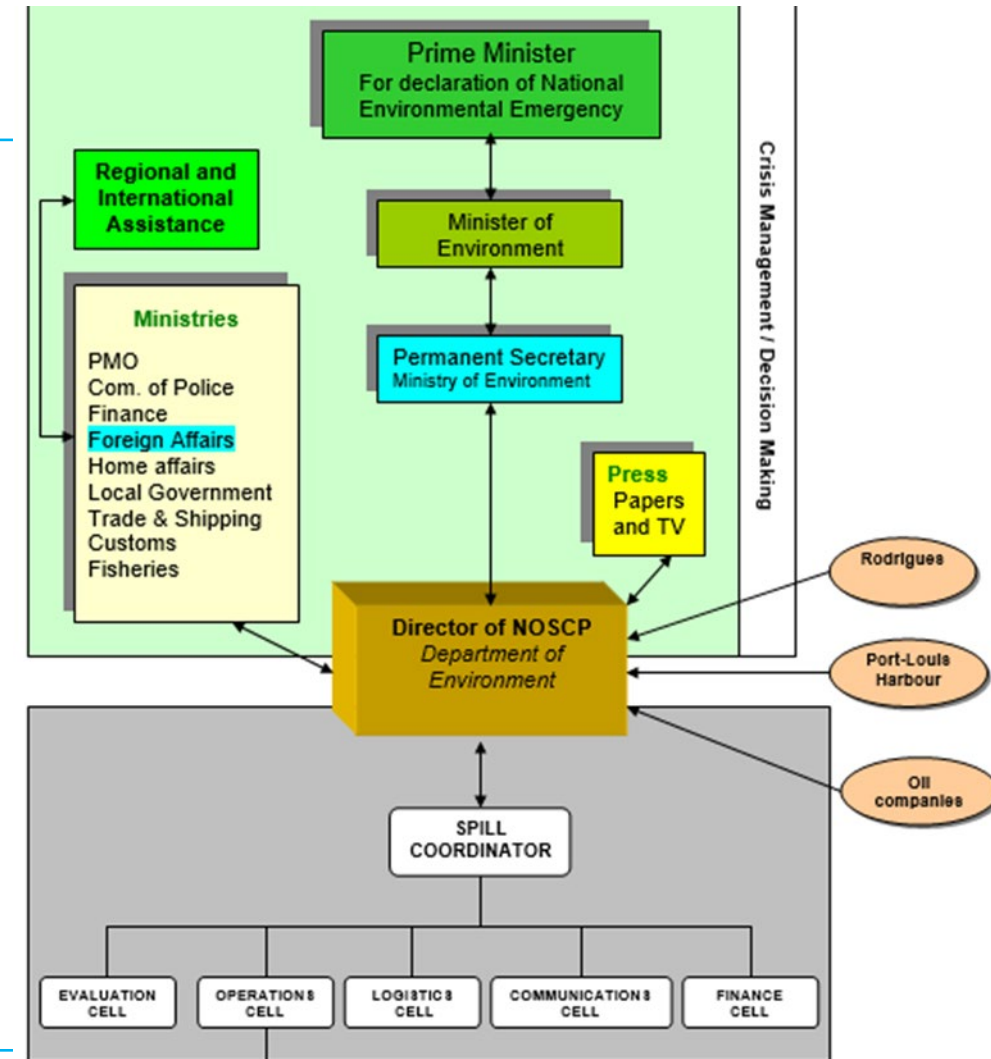
25 July 2020: Grounding of MV Wakashio



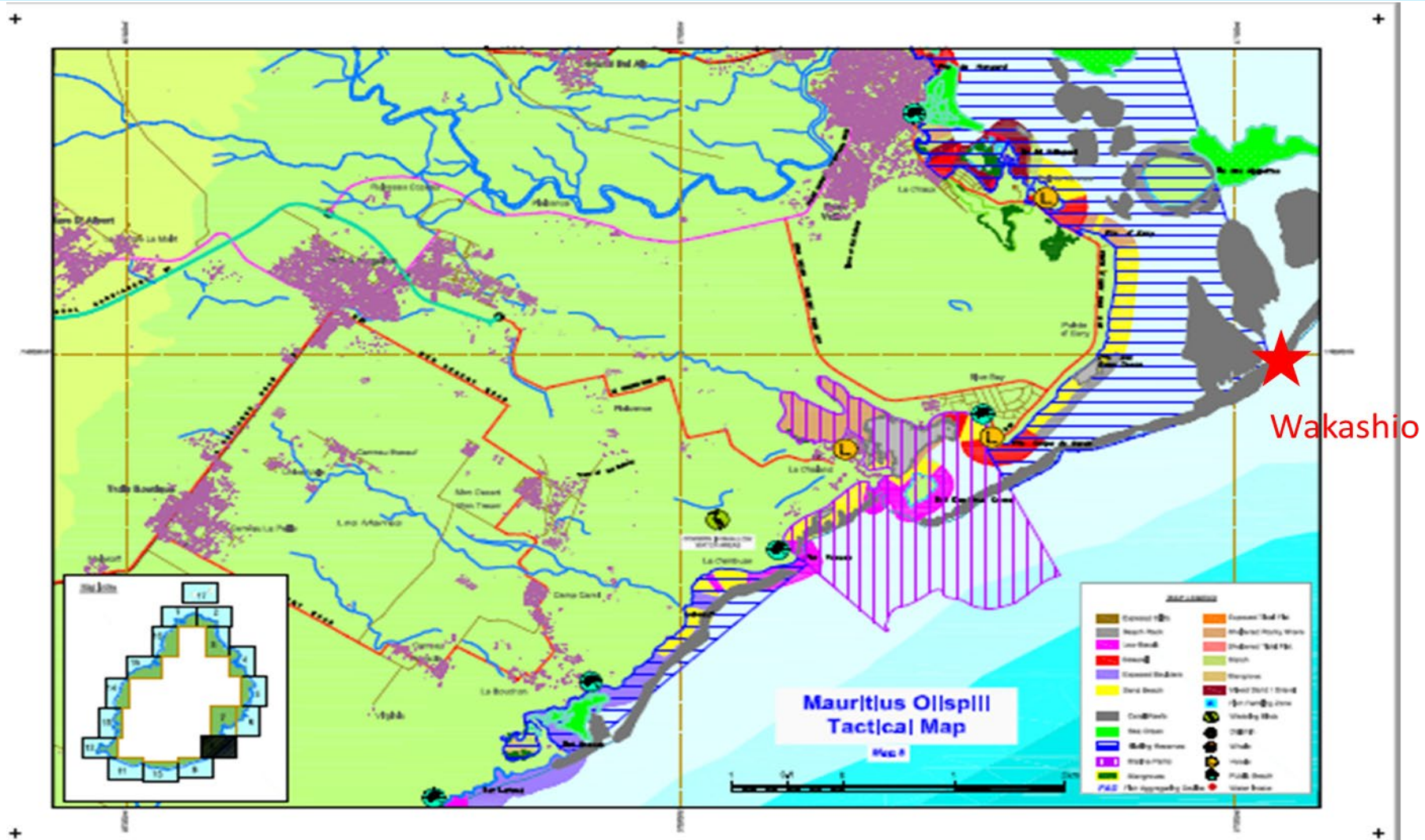
No oil spill was observed at that time.

Oil spill response structure

- National Oil Spill Contingency Plan (NOSCP) provides the organisational structure and procedures for preparedness and response to oil spills.
- Ministry of Environment, SWM and CC is responsible for coordination of the NOSCP.
- Coastal Sensitivity Atlas was used to identify coastal sensitive areas which required special protection.



Identification of Environmentally Sensitive Areas



Environmentally Sensitive Areas (ESAs)

- Blue Bay Marine Park (Ramsar Site)
- Pointe d'Esny Wetland (Ramsar Site)
- Ile aux Aigrettes (Nature Reserve)



06 August 2020: Oil spill occurred from MV Wakashio



Around 841 tons of LSFO spilled out





Mahebourg waterfront



Riviere des Creoles area



Riviere des Creoles area



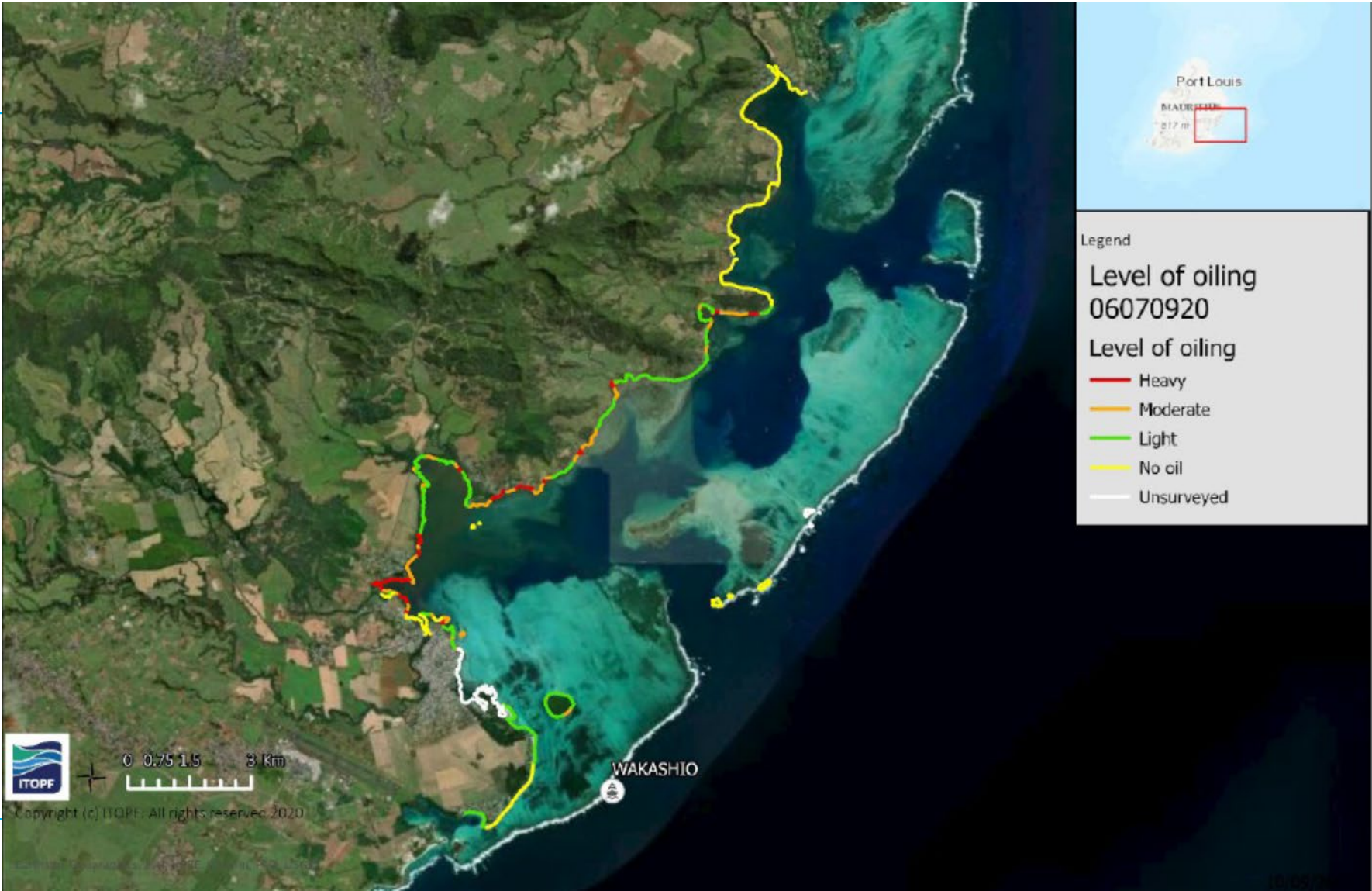
Bambous Virieux Area



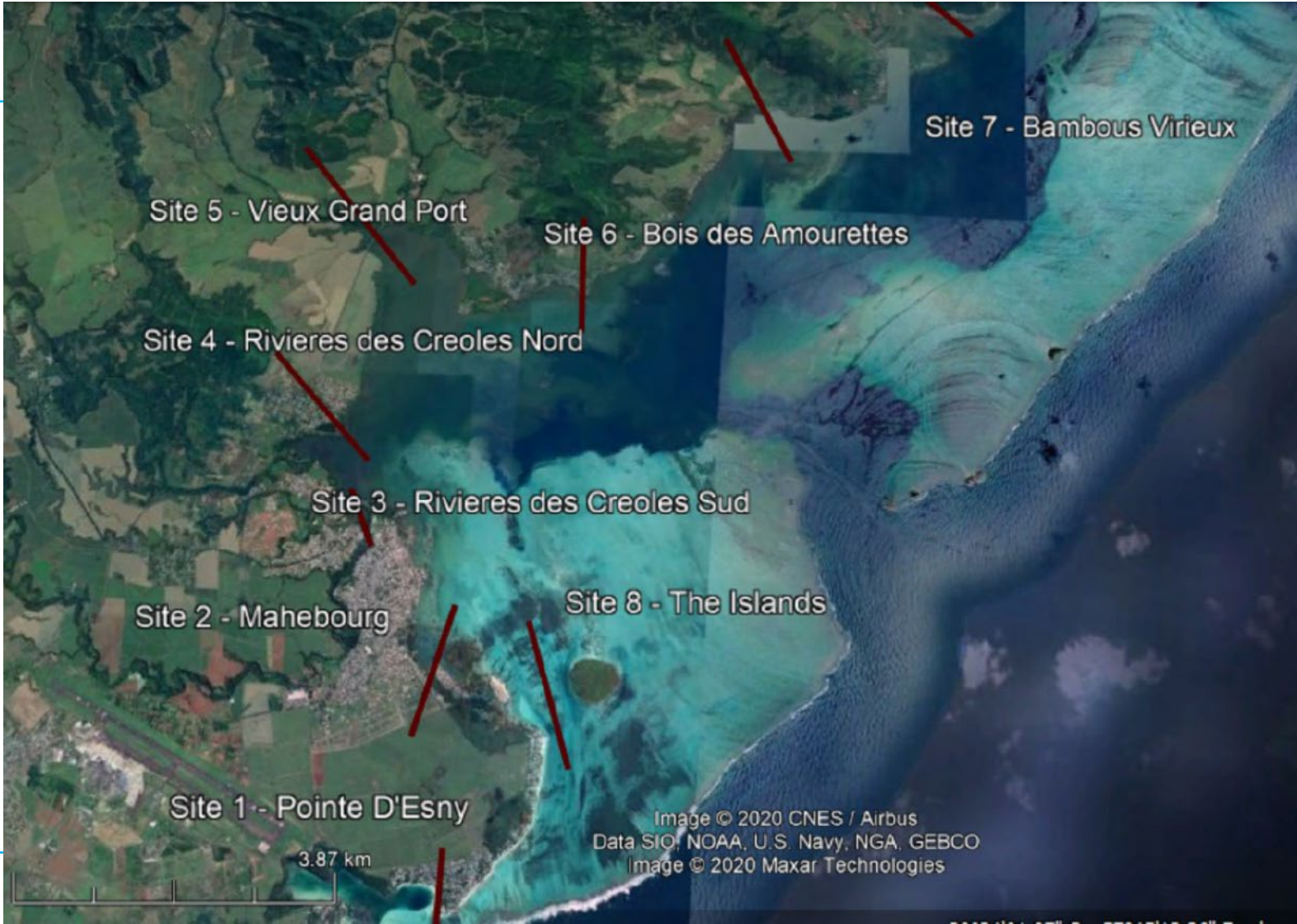




Degree of shoreline contamination within affected areas



Segmentation of affected shoreline



Overview of affected shoreline

(i) Fringe mangrove: Mangrove dominates most contaminated sites within the affected area. This ecologically sensitive habitat was typically found in the form of a relatively narrow fringe on the lower and mid-shore. The sites were sheltered, with a substrate of mud, sand, and scattered basalt boulders in places.



Overview of affected shorelines

- (ii) Rocky shore: Rocky shores were frequently encountered within the affected area. These sites were typically sheltered, and the rocky substrate was usually in the form of large basalt boulders, often interspersed with dark volcanic sand. Rock surfaces were found to have coatings of oil, with some thicker accumulations in places.



Overview of affected shoreline

- (iii) Human-made structures: In addition to natural shorelines, there were also human-made features along the affected stretch of coastline. These included quay walls, piers, and boulder rip-rap. These sites typically had a defined band of oil contamination with accumulations in-between rocks, and other gaps, and oily debris scattered throughout.



Overview of affected shoreline

- (iv) Sand beaches: There were relatively few sand shores within the affected area, with the more heavily contaminated sites consisting of short stretches of sheltered narrow beach.



Site prioritization

- Sites that have large accumulations of 'mobile oil' that could re-mobilise with tidal action and contaminate new areas;
- Sites for public use and cultural events; and
- Sites with high environmental and/or socio-economic sensitivity.

Clean-up techniques

The following shoreline clean-up techniques were applied to the affected sites, depending on the following key criteria:

- Substrate and shoreline type
- Environmental sensitivity
- Amenity value / public use / tourism
- Access and safety for workers

Clean-up techniques

Manual cleaning

This technique is typically the first one to be applied to a site, for the removal of oil accumulations and oily debris. This will include all sites, but particularly those with mangrove, rip-rap and other substrates (natural or not) that can create traps for oil and debris, and that have not already been cleaned by the various local teams.



Clean-up techniques

High-Volume Low-Pressure Flushing

Flushing consists of rinsing the oily substrate by applying large volumes of seawater at low pressure and ambient temperature using pumps to dislodge trapped oil, lift oil out of the sediment and re-float it before containing and recovering it using either skimmers or sorbents.



Clean-up techniques

Skimming

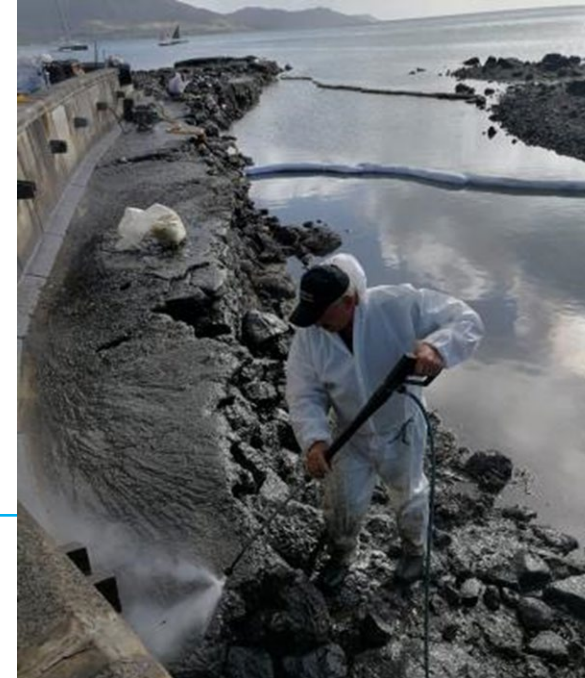
This technique involves recovering oil from the water surface with the help of skimmers floating on the surface of the water.



Clean-up techniques

Hot-Water High-Pressure Washing

Once the oil layers have been removed, high pressure cleaning is used on low sensitivity "hard" substrates such as rip-rap, concrete walls or natural rocks where a high level of cleanliness is required.



Determinants of clean-up end points

- Joint site visits were carried out in January 2021 at the affected sites to determine clean-up endpoints.



Determinants of clean-up end points



Determinants of clean-up end points



Determinants of clean-up end points



Determinants of clean-up end points



Outcomes of clean-up endpoints site visits

- The field assessment of clean-up in the affected segments/sites five months after launching response operations shows consistency between the achieved “clean-up level” and the guiding concepts/principles regarding clean-up objectives.
- The segments and sites inspected require no further treatment.

Waste management

- Approximately 1,282 metric tons of liquid Heavy Fuel Oil wastes have been collected and carted away to Ecofuel Ltd, Virgin Oil (Mauritius) Co. Ltd and to the Mare Chicose landfill.



Waste management

- Around 2,432 metric tons of contaminated solid wastes and debris have also been collected and transferred to the Interim Hazardous Wastes Storage Facility for subsequent exportation to licensed facilities.



Waste management

- Additionally, about 2,352 cubic metres of saturated booms have been carted away to La Chaumière and La Laura Transfer Station.



Thank you



UNEP-Norway Partnership

United Nations Avenue, Gigiri
PO Box 30552 – 00100 GPO Nairobi, Kenya

www.unep.org