Ministry of Environment, Solid Waste Management and Climate Change

National Oil Spill Contingency Plan of the Republic of Mauritius (2025)

Acknowledgements

The UNDP Country office, the UNEP through the Nairobi Convention Secretariat (NCS) are deeply acknowledged for their technical and financial support in the reviewing / updating of the National Oil Spill Contingency Plan (NOSCP) 2003 and the coastal sensitivity atlas for Mauritius 2002. In addition, the NCS supported the organisation of ten key sectorial workshops with various stakeholders for materialising a comprehensive and inclusive NOSCP 2025.

Additionally, the contribution of the Government of Japan and the Japan International Cooperation Agency is being acknowledged for providing a three year Technical Assistance Programme for Enhancement of Institutional Capacity for Oil Spill Response for the Republic of Mauritius, from August 2022 to July 2025. One of the key deliverables was the creation of a total of 20 tactical sheet folios (TSF) for the three study sites namely from Le Goulet to Albion (9 TSF), from Pointe du Diable to Blue Bay (6 TSF) and from Cap Malheureux to Poste de Flacq (5TSF). The TSF includes priority areas for protection, booming site, resources required, safety aspects to be take into consideration as well as response time for a feasible operation.

This project has also seen the active contribution of key governmental and private institutions and other groups of stakeholders, such as fishers, operators of the tourism sector, women association, youth, the media, NGOs, first responders, and local authorities, which have all provided valuable and practical inputs which have been included in this NOSCP. Additionally, there has been a strong and continuous support from the staff of the Department of Environment who diligently provided support during the whole process.

Executive Summary

The Republic of Mauritius has an exclusive economic zone (EEZ) of 2.2 million km^2 and an additional extended continental shelf area (~400,000 km^2) which is co-managed with Seychelles outside the borders of their respective EEZs.

The Indian Ocean Region is a major maritime route for trade and commerce. It is estimated that over 100,000 ships transit the ocean annually, with around 30 per cent of global containerised cargo, while around 42 per cent of global crude oil product and distillate is lifted from and within the region. In view of this huge maritime traffic in the region, the country is being exposed to a heightened risk of maritime accidents which may result in oil spills.

Mauritius is highly dependent on the coastal and marine environment and resources for its socio-economic development. The sustainability of the major economic activities such as tourism and fisheries is totally dependent on the vitality, aesthetics and ecological functioning of the coastal and marine ecosystems. Incidents leading to oil pollution will result in serious ecological and socio-economic damage and disruption. Mauritius has witnessed one of its major oil spill incidents in August 2020 following the grounding of MV Wakashio and since then, nine vessel groundings have been recorded with varied environmental impacts.

The socioeconomic development of Mauritius relies heavily on fossil fuel derivatives. In year 2023 – 2024, the total imports for black and white oil amounted to 662,444 MT and 787,038 MT, respectively. The total bunker traffic amounted to 734,856 MT (bunker by pipeline amounted to 54,462 tonnes and bunker by barges amounted to 679,394 MT) for the Republic of Mauritius.

The first National Oil Spill Contingency Plan (NOSCP) was prepared in 2003 by the then Ministry of Environment and National Development Unit. Besides the risks of marine accidents from the heavy maritime traffic in the region, the current changing sea climate and conditions due to the accelerating climate change impacts, as well as lessons learnt from the Wakashio oil spill incident in August 2020, there was a strong need to review and update the existing NOSCP 2003. Conscious of the need to be in a state of preparedness regarding of oil spills, the Ministry of Environment, Solid Waste Management and Climate Change, in collaboration with the Nairobi Convention, came up with the NOSCP 2025.

The purpose of the updated National Oil Spill Contingency Plan (NOSCP) 2025 is to enhance the national framework for preparing, coordinating and responding to oil spills accidents in the

Exclusive Economic Zone of the Republic of Mauritius. Furthermore, the NOSCP provides the basis for implementing Mauritius' obligations under the Oil Pollution Preparedness, Response and Cooperation Convention of 1990. The Plan has been developed as part of the fulfilment of the obligations for the country to protect its valuable coastal and marine resources from the threat of marine pollution incidents linked to pollutants of petroleum (or fossil fuel) origin on, or into the navigable waters of the Republic, on the adjoining shorelines, the waters of the contiguous zone or into waters of the exclusive economic zone.

Additionally, the NOSCP 2025 provides the basis for an efficient oil spill response operation under the overall lead of the Ministry of Environment, Solid Waste Management and Climate Change.

The NOSCP also provides the organisational structure set up based on the Incident Management Command System and describes the procedures to be followed in the event of an oil spill incident. The management of oil spill incidents requires a structured and efficient system for command, control, and coordination. The Incident Command System (ICS) has been adopted as the operational framework for managing oil spill emergencies under the National Oil Spill Contingency Plan. It allows agencies to work together to develop response strategies to respond to an oil spill. The ICS has a command staff section comprising of the Director of Environment as the Incident Commander for the whole incident. He is assisted in his task by an Incident Coordinator, government stakeholders, technical advisers and a legal advisor, amongst others.

The ICS is composed of four main sections namely Planning, Operations, Logistics and Finance / Administration which are set up to support the decision-making process for the command structure. The main functions of these sections are as follows:

(i) the **Planning Section** is responsible for evaluation, developing operational plans and providing expert advice and technical information to the response organization.
(ii) the **Operations Section** is responsible for all field-operating activities.
(iii) the **Logistics Section** is responsible for providing all support resources to keep the response operating.
(iv) the **Finance / Administration Section** is responsible for all expenditures and to ensure they are properly documented for asset control and invoicing purposes.

One new feature of this Plan is that the Director of Shipping will also form part of the command staff where there is a potential threat of an oil spill involving a vessel at sea. The Director of

Environment will report to the National Crisis Committee (NCC) of the National Disaster Risk Reduction and Management Centre.

The role and responsibilities of all these actors have been defined in the new NOSCP. Stakeholders such as the Beach Authority, the Mauritius Hydrographic Service, the Mauritius Oceanography Institute, the National Disaster Risk Reduction and Management Centre, NGOs, Civil Society Organisations and Volunteers who were missing, have been incorporated in the new Plan and their specific roles and responsibilities defined. In the event of a marine pollution incident in the Republic of Mauritius, all concerned government departments and agencies, oil companies, shipping companies and other relevant parties, which operate within the Republic, will follow the procedures laid down in this plan.

Additionally, this NOSCP adopts a new Tiered Response Concept where the environmentally sensitive areas within the affected area as well as the risk / probability of higher impacts of the spilled oil are also taken into consideration. Depending on the environmental sensitivity of the area the Tier level response may be escalated to a higher level. In the event of a grounding and a potential risk of an oil spill, environmental pre-spill baseline data will be collected in order to assess and monitor post-spill damages to the environment. This will also support claims to be made to compensate for damages caused to the marine ecosystem. In addition, clean-up endpoints determination mechanism will be set in order to assess whether the clean-up response has achieved the desired results.

The NOSCP would be tested through table top exercise(s) and or field training exercise(s). Being a dynamic document, the plan shall be reviewed every 5 years or at such time as the Minister may determine as per Section 57 (3) of the of Environment Act 2024.

The Plan is accompanied with a Coastal Sensitivity Atlas for Mauritius and Rodrigues which describes the coastal sensitive areas; and economic activities as well as strategies to be adopted in the event of an oil spill. In addition, guidelines developed under the "*Facilite d'Amorçage, de Préparation et de Suivi des Projets*" are annexed to the Plan:

(i) an inventory and assessment of the oil spill equipment available in Mauritius and Rodrigues;

(ii) an Oil Spill Waste Management Plan for Mauritius and Rodrigues;

(iii) an Oil Spill Volunteer Management/Coordination Plan for Mauritius and Rodrigues; and

(iv) a framework for an environmental and socio-economic impact assessment for Mauritius.

The Plan also incorporates the following Annexes which will be updated as and when required:

- **Appendix 1**: Areas To Be Avoided around Mauritius and Rodrigues
- **Appendix 2:** Summary of Oil Types
- **Appendix 3:** Aerial Observations/Surveillance Guidelines
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List of Abbreviations

Abbreviation	Meaning
AFD	Agence Française de Développement
BRGM	Bureau de Recherches Géologiques et Minières
CP	Commissioner of Police
CSA	Coastal Sensitivity Atlas
CSTCC	CST Catalytic-Cracke Product
CSTSR	CSR Straight-Run Product
CWA	Central Water Authority
DCS	Department for Continental Shelf, Maritime Zones Administration & Exploration
DOE	Department of Environment
EA 2024	Environment Act 2024
EBSA	Ecologically or Biologically Significant Area
EEZ	Exclusive Economic Zone
ESEIA	Environment, Socio-Economic Impact Assessment
FAPS	Facilite d'Amorçage, de Préparation et de Suivi des Projets
FPS	Fisheries Protection Service
FUND	International Convention on Establishment of an International Fund for Compensation for Oil Pollution Damage
GIPM	Groupement d'Intervention de la Police Mauricienne
GIS	Government Information Service
GO	Gas Oil
IAP	Incident Action Plan
IBC	Integrated Bulk Carrier
IC	Incident Coordinator
ICM	Incident Commander
IMO	International Maritime Organisation
IMS	Incident Management System
IMT	Incident Management Team
IOPC	International Oil Pollution Compensation Funds

ITOPF	International Tanker Owners Pollution Federation
JICA	Japan International Cooperation Agency
JMA	Joint Management Area
LEU	Living Environment Unit
MARCOS	Marine Commandos
MBC	Mauritius Broadcasting Corporation
MFRS	Mauritius Fire and Rescue Service
MHS	Mauritius Hydrographic Service
MLG	Ministry of Local Government and Disaster Risk Management
MLO	Media Liaison Officer
MOAFSBEF	Ministry of Agro-Industry, Food Security, Blue Economy and Fisheries (Blue Economy, Marine Resources and Fisheries Division)
MOE	Ministry of Environment, Solid Waste Management and Climate Change
MOF	Ministry of Finance
MOHnL	Ministry of Housing and Lands
MOHW	Ministry of Health and Wellness
MOL	Ministry of Labour, Human Resource Development and Training
MOT	Ministry of Tourism
MPA	Mauritius Ports Authority
MPF	Mauritius Police Force
MPS	Ministry of Public Service, Administrative and Institutional Reforms
MRA	Mauritius Revenue Authority
MRCC	Maritime Rescue Command Centre
MSS	Ministry of Social Integration, Social Security and National Solidarity
MT	Mauritius Telecom
MWF	Mauritian Wildlife Foundation
NCC	National Crisis Committee
NCCC	National Command and Control Centre
NCG	National Coast Guard
NCS	Nairobi Convention Secretariat
NDRRMC	National Disaster Risk Reduction and Management Centre
NECA	National Environment Cleaning Authority

NEL	National Environmental Laboratory
NEOC	National Emergency Operations Command
NGO	Non-Governmental Organisation
NOSCP	National Oil Spill Contingency Plan
NPCS	National Parks and Conservation Service
NWC	National Women's Council
NYC	National Youth Council of Mauritius
OSC	On-Scene Coordinator
P&I Clubs	Protection and Indemnity Clubs
PE	Police de l'Environnement
PHS	Police Helicopter Squadron
PLHOSRP	Port Louis Harbour Oil Spill Response Plan
PMU	Project Management Unit of the Ministry of Environment, Solid Waste Management and Climate Change
POLAST	Pollution Assistance System
POLREP	Initial Pollution Report
POSTREP	Post Incident Report
PPE	Personal Protective Equipment
RoM	Republic of Mauritius
ROSCP	Rodrigues Oil Spill Contingency Plan
RPC	Response Planning Cycle
SAMU	"*Service d'Assistance Medicale d'Urgence"*
SANCCOB	Southern African Foundation for the Conservation of Coastal Birds
SAPPHIRE	Western Indian Ocean Large Marine Ecosystems Strategic Action Programme Policy Harmonisation and Institutional Reforms
SDGs	Sustainable Development Goals
SIDS	Small Island Developing State
SIMA	Spill Impact Mitigation Assessment
SITREP	Situation Report
SJA	St. John Ambulance
SM	Sensitivity Map

SME	Small and Midsize Enterprises
SMF	Special Mobile Force
SPC	Spill Coordinator
SRS	Spill Response Strategy
STC	State Trading Corporation
STS	Ship to Ship Transfer
TA	Tourism Authority
UAV	Unmanned Aerial Vehicle
UC	Unified Command
UNCLOS	United Nations Convention on the Law of the Sea
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
WCMC	World Conservation Monitoring Centre
WIO	Western Indian Ocean

Part A. National Strategy

1.0 Introduction

1.1. Background

The national competent authority legally mandated to address oil spills and environmental emergencies is the Ministry of Environment, Solid Waste Management and Climate Change. This National Oil Spill Contingency Plan (NOSCP) has been developed as part of the commitment of the Republic of Mauritius (RoM) to protect our valuable coastal and marine resources from the threat of marine pollution incidents.

Marine oil spills have the potential to turn into catastrophic events, which may cause adverse consequences on humans, marine life, the environment, and the country's economy and tourism. The toxicity of oil can cause environmental damages that may take many years to recover. The NOSCP reflects the essential steps necessary to initiate, conduct, coordinate and terminate an emergency spill response on, or into the navigable waters of the Republic of Mauritius, on the adjoining shorelines, the waters of the contiguous zone, or in the waters of the exclusive economic zone.

This plan meets the obligations under the International Convention on Oil Pollution Response, Preparedness and Cooperation 1990 (OPRC 1990). The plan equally describes the assignment of duties and responsibilities to all public services/agencies involved in the preparedness and response chain. In the event of a marine pollution incident in the Republic of Mauritius, all government departments and agencies and all oil companies, shipping companies, and other relevant parties, that operate within the RM, are required to follow the procedures laid down in this plan. The RoM may seek international emergency support in case of a major oil spill incident beyond the country's national capability.

1.2. Purpose and Objectives

The purpose of the NOSCP is to facilitate a well-organised, quick and effective response to marine spill incidents in such a way so as to minimize any potential adverse effects results from an oil spill on the marine environment. The NOSCP provides the organizational structure and describes the procedures to be followed in the event of an oil spill incident. The aim is to protect against environmental pollution as a result of oil contamination or, where this is not possible, mitigate the effects. It covers the roles, duties and responsibilities of relevant parties as listed in Part B.

It urges all the stakeholders to continually discuss, develop and agree on response strategies to a range of spill scenarios and to integrate the individual existing contingency plans.

1.3. Scope of the Plan

The NOSCP describes the policies and operational procedures for the response to oil spills in the EEZ of the Republic of Mauritius. The Plan outlines combined stakeholder arrangements designed to ensure a prompt and coordinated response to marine oil spills in the marine environment. The available resources and equipment response capability of the Government can deal with oil spills involving a quantity of approximately 10 metric tonnes of oil. For any oil spill over this capacity, regional and international assistance would be sought.

The definition of a spill is provided in the EA 2024 as follows: "oil spill" means a discharge of oil into the environment from or out of a structure, vehicle, vessel, craft, or other carrier or container, which -

a) is abnormal having regard to all the circumstances of the discharge; and

b) poses a serious threat to the environment.

This plan is designed to focus on persistent petroleum products of fossil origin.

1.4. Geographical Area of Coverage

The NOSCP covers the Exclusive Economic Zone of the Republic of Mauritius as indicated in the following map from the Department for Continental Shelf, Maritime Zones Administration & Exploration of the Prime Minister's Office[1]. The National Oil Spill Contingency Plan therefore includes the islands and Exclusive Economic Zone around the Islands of Mauritius, Rodrigues, Agaléga, Tromelin, Cargados Carajos and the Chagos Archipelago, including Diego Garcia and any other island comprised in the State of Mauritius. This plan encompasses the forty-nine islets around Mauritius and the eighteen islets located within the lagoon of Rodrigues[2]. On land, it includes the foreshore and any adjacent land affected by an oil spill.

[1] https://csmzae.govmu.org/Documents/CSMZAE/Maps/A3_indianOceanJMAEEZ_23022016_9_bathy_100dpia.tif
[2] https://www.nairobiconvention.org/mauritius-country-profile/#:~:text=The%20main%20island%2C%20Mauritius%2C%20is,of%202.3%20million%20square%20kilometres.

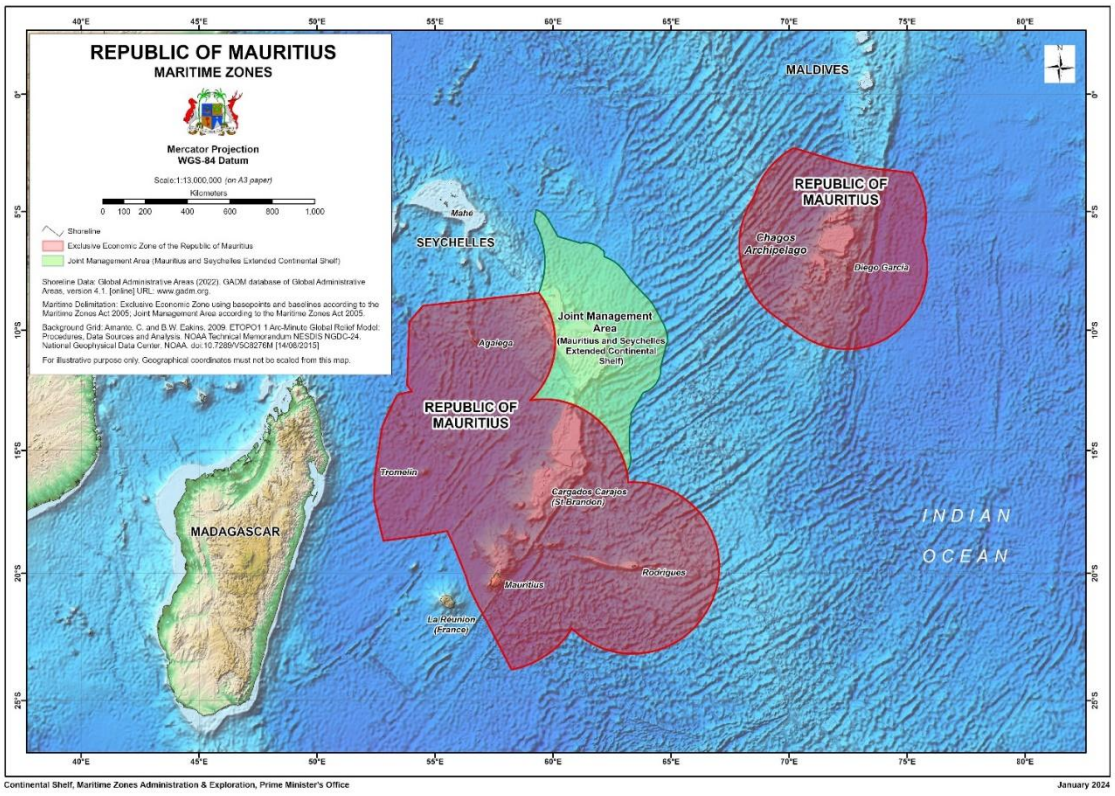


Figure 1: Map of the maritime zones of the Republic of Mauritius

1.5. Integration with other Plans

The National Oil Spill Contingency Plan is the main and statutory document dealing with oil spill in the Republic of Mauritius. However, the plan may be used in conjunction with other oil spill contingency plans and documents, including:

- The Rodrigues Oil Spill Contingency Plan;
- The Port Louis Harbour Oil Spill Response Plan; and
- Oil Spill Response Plans drawn up by oil companies and factories having oil storage on their sites.

1.6. Legal and Regulatory Framework

1.6.1 National Legislation

The main National Legislation which applies to response to oil spills occurring in the Republic of Mauritius is the Environment Act 2024 which caters for a much stronger and better structured section for oil spill under **PART V – OIL SPILL AND ENVIRONMENTAL EMERGENCY**. This section is divided into four sub-parts namely: Part A – National Oil Spill Contingency plan which caters for the National Oil Spill Contingency Plan, Part B puts emphasis on Oil Spill

response, Part C caters for Environmental Emergency and Part D caters for damages such as liability and recovery of expenses. This clear structure makes it easier to understand and to apply the law. A National Oil Spill Contingency Plan must be kept up to date, and a National Oil Spill Coordination Committee to ensure cooperation among public bodies that deal with oil spill incidents.

The Environment Act 2024 also focuses on preparedness and prevention. Any facility that stores or uses liquid fuel must carry out risk assessments and prepare its own contingency plan. If a spill happens, the polluter must inform the DOE and the National Disaster Risk Reduction and Management Centre within one hour. The Director of Environment has wider powers to step in quickly if the polluter fails to act, and response measures like clean-up, storage, and disposal must follow prescribed safe methods.

In the case of a major threat, the Prime Minister can declare an environmental emergency, giving government the power to evacuate people, control transport, mobilise resources, and accept international assistance without delays or taxes. This makes the response faster and more effective.

The Environment Act 2024 also keeps the rule of strict liability—the polluter is always presumed responsible—but expands it further. The government can now recover not only clean-up and disposal costs, but also the expenses of monitoring, prevention, and socio-economic studies. These costs are treated as state debts, with interest, which makes enforcement stronger.

According to the provisions contained in the Act, the Director of Environment is the Director of the Spill and therefore acts as the Incident Commander in the event of an oil spill and coordinates the oil spill response in collaboration with the Director of Shipping.

The other national laws which have relates to oil spill response are listed hereafter:

- **The Police Act 1974**[3]**:** The Act defines the duties of police officers as well as powers to arrest or direct actions to be taken. Section 9 (1A) of the Act stipulates that the police force may exercise any of the duties referred to in section 9 subsections (1) (b), (c) and (k) in the maritime zones of Mauritius and, for the purposes of the Piracy and Maritime Violence Act 2011, in the high seas. The law goes further by identifying the rules regarding the establishment of protected and restricted areas "in the interest of public safety" (section 13A and 13B respectively). These provisions ought to be relevant to the securing of polluted shorelines and operational areas for public safety;

- **The National Coast Guard Act 1988**[4]**:** The Act establishes the National Coast Guard as a special unit of the MPF with specific duties as listed in section 6: Subject to the other provisions of this section, the National Coast Guard shall be responsible for (a) the enforcement of any law relating to the security of the State of Mauritius; (b) the enforcement of any law relating to the protection of the maritime zones; (c) the detection, prevention, and suppression of any illegal activity within the maritime zones; (d) such task forces or other operational units as the Commandant may set up as stipulated in the National Coast Guard Act. Additionally, the following sections of the Act ought to be relevant in the case of oil spill response:
    - *Section 10 Authority to board a vessel:* Members of the National Coast Guard may, in the execution of their duties or the exercise of their authority, board any vessel. Every vessel that is underway shall, upon being hailed to be a vessel of the National Coast Guard, stop immediately and lie to or manoeuvre in such a way as to permit the members of the National Coast Guard to board the vessel;
    - *Section 12 Powers of the National Coast Guard:* (b) The National Coast Guard shall have authority to prevent any activity which is likely to constitute a threat to the maritime zones, including the seabed, the flora, the reefs, the beach, and the coastline; (c) to undertake search and rescue operations in all situations of distress in the maritime zones; (d) to undertake or participate in any salvage operations; (f) to monitor and control all seaborne activities within the maritime zones; (g) **to prevent any form of maritime pollution or any activity likely to cause maritime pollution**; (o) to take charge of and protect any

[3] https://dha.govmu.org/Documents/Legislations/New_folder/POLICE%20ACT.pdf

[4] https://dpp.govmu.org/Documents/Maritime%20Law/THE%20NATIONAL%20COAST%20GUARD%20ACT%201988.pdf#search=national%20coast%20guard

jetsam, flotsam or other property emanating from any aircraft or vessel; (r) to co-operate or maintain contact with such department or authority or other agency as it may consider necessary in or for the execution of its duties and any related matter.

- **The Ports Act 1998**[5]**:** The Port Louis Harbour Oil Spill Response Plan covers the limits of the Port, as defined by Schedule (Section 2) of the Ports Act 1998. By Sections 32, 55, 56 and 63 of the Ports Act 1998, the Port Master is empowered to give directions and take command and control of any emergency within the harbour limits. The Port Master represents the Mauritius Ports Authority in the Oil Spill Command Group; It is to be noted that it is a criminal offence not to comply with the direction without any reasonable cause.

- **The Maritime Zones Act 2005**[6]**:** This act gives force of law to UNCLOS in Mauritius and defines the maritime zones of Mauritius. Mauritius has sovereign jurisdiction in the Exclusive Economic Zone (EEZ) as per international law, for the protection and preservation of the marine environment.

- **The Merchant Shipping Act 2007**[7]**:** Under this Act, international maritime conventions such as the International Convention on Limitation of Liability for Maritime Claims (LLMC); MARPOL Annexes I, II, III, and VI; and the International Convention on Salvage 1989 have been domesticated. These international conventions which are detailed in section 1.6.2 ensure the jurisdiction of national courts, and a common set of rules which are applied to international shipping, including simplification of the compensation processes by setting strict liability. Sections 150(1)(b) and 150 (2) of the Act are of relevance as regards the ambit of actions which may be taken in case of oil spill or marine casualty. Section 222 of the Act as amended by The Finance (Miscellaneous Provisions) Act 2023 addresses the financial liability of the owner, agent, operator or insurer of the ship with regards to the expenses incurred by the Government of Mauritius in taking preventive measures to protect the environment or mitigate such hazards or for the clean-up operations after an oil spill.

[5] http://www.mauport.com/sites/default/files/public/PORTS_ACT_1998_0.pdf
[6] https://csmzae.govmu.org/Documents/Legislations/CSMZAE/THE%20MARITIME%20ZONES%20ACT%202005.pdf
[7] https://www.ilo.org/dyn/natlex/docs/ELECTRONIC/78734/84346/F1526157199/MUS78734.pdf

- **Merchant Shipping Act 2007**

  The Act gives the force of law to the International Convention on Civil Liability for Oil Pollution Damage (CLC), 1992, to the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage (Fund). 1992, and to the Protocol of 2003 to the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage (Supplementary Fund/), 1992, which are maritime treaties dealing with pollution damage caused only by oil tankers which carry oil in bulk as cargo, and to which Mauritius is a party.

  The Act makes provisions to ensure that adequate compensation is made available to persons who suffer from pollution damage caused in the territorial sea of Mauritius and the exclusive economic zone of Mauritius, pollution damage caused as a result of the discharge or escape of oil, wherever such discharge or escape may occur, where the oil is carried in bulk as cargo on board an oil tanker or where the oil is used or intended to be used for the operation or propulsion of an oil tanker.

- **National Disaster Risk Reduction and Management Act 2016**[8]**:** The Act gives a statutory footing to the NDRRMC which has the responsibility to cover natural and manmade disasters in the Republic of Mauritius. The Act establishes a National Council, for the implementation of the obligations of Mauritius under disaster management treaties to which Mauritius is a party, regional and international cooperation related to disaster risk reduction and management; to ensure that ministries, departments, and local authorities have adequate human resources, tools, materials, and other resources for the effective implementation of disaster risk reduction and management activities at all levels; to have an oversight on the implementation of post-disaster recovery and reconstruction activities;**Powers of National Council:** The National Council shall have such powers as may be necessary to discharge its functions most effectively and may, within the purview of this Act : (a) require any Ministry, Government department, local authority or any other body to provide such information in such manner and within such time as it may determine; cause any Ministry, Government department, local authority or any other body to provide their facilities and resources for the protection and preservation of life and property in disaster risk reduction and management; and set up any advisory or technical sub-committees on matters related to disaster risks reduction and management;**Functions and powers of National Crisis**

[8] https://localgovernment.govmu.org/MyDocument/Legislations/NDRRMC%20Act.pdf

Committee: The National Crisis Committee shall have all the functions and powers of the National Council and shall take decisive and timely actions through the National Emergency Operation Centre to ensure that general preparedness plans are activated at all levels; safeguard the life of persons in danger, including evacuation of persons at risk; supervise the organisation of disaster response operations; provide relief assistance; take appropriate measures during the initial recovery phase; and take such other measures as may be appropriate in the circumstances.

- **The Mauritius Meteorological Services Act 2019**[9]: The Act gives statutory footing to the Mauritius Meteorological Services and provides that it is the official authority responsible for monitoring the evolution of weather and climate, including extreme weather, throughout Mauritius, and for providing weather forecasts, advisories, and warnings for the welfare and safety of the general public and the protection and safety of maritime and aeronautical navigation as well as acts as the National Tsunami Warning Centre for Mauritius. The Act further identifies the functions and powers of Mauritius Meteorological Services including most relevant to this contingency plan as follows: provide daily and seasonal weather forecasts and climate services; provide advisories and warnings for extreme weather events and tsunamis; provide advisories and warnings to ensure the protection and safety of maritime navigation within the METAREA VIII(S); and aeronautical navigation within the MAURITIUS FIR; keep the entities set up under the National Disaster Risk Reduction and Management Act informed of the evolution of weather and climate, including extreme weather; prepare, disseminate, and supply meteorological data, information, products, and advice; be responsible for the reception and transmission of meteorological data and information at local, regional, and international levels; ensure optimum use of communication facilities for the transmission and reception of meteorological data and information at local, regional, and international levels.

1.6.2 International Conventions

The following section provides information on the relevant International Maritime Conventions ratified by Mauritius which may apply to this plan:

[9] http://metservice.intnet.mu/about-us/legislations/

- ***The International Convention o*n Limitation of Liability for Maritime Claims *1*976 (LLMC 76) was ratified on 17 December, 2002 and came into force on 1 April 2003[10]:** The *Convention on Limitation of Liability for Maritime Claims* (LLMC Convention) allows ship-owners to limit their liability to pay compensation for general ship-sourced damage. The LLMC Convention applies to claims for loss of life and personal injury, as well as loss of or property damage. It also applies to pollution damage where no other Convention applies;

- **The International Convention for the Prevention of Pollution from Ships (MARPOL 73/78) was ratified on 6 April 1995 and came into force on 6 July 1995[11]:** The 1973 International Convention for the Prevention of Pollution from Ships (MARPOL 73/78), as modified by the Protocol of 1978, provides for various types of pollution from ships accidentally or through the operation of the ship. Mauritius has acceded to all 6 Annexes of MARPOL but only four annexes have been domesticated, namely Annexes I, II, III, and VI. Domestication of Annex IV and V is underway. MARPOL requires port reception facilities for oily residues (Annex I), garbage (Annex V), and sewage (Annex IV);

- **International Convention on Oil Pollution Preparedness, Response & Cooperation 1990 (OPRC 90) ratified on 2 December 1999 and came into force on 2 March 2000[12]:** This Convention's primary objective is to facilitate international cooperationand mutual assistance between states and regions in preparing for and responding to major oil pollution incidents. The OPRC 90 encourages states to develop and maintain an adequate capability to deal with oil pollution emergencies;

- **The International Convention on Civil Liability for Oil Pollution Damage 1992 (CLC) was ratified on 6 December 1999 and came into force on 6 December, 2000[13]:** The 1992 CLC governs the liability of tanker owners for oil pollution damage (Persistent Cargo or Bunker oil). It lays down the principle of strict liability but limited liability (i.e., liability even in the absence of fault up to an international agreed limit based on the gross tonnage) and creates a system of compulsory liability insurance. Any claim for compensation for

[10] https://www.ecolex.org/details/treaty/convention-on-limitation-of-liability-for-maritime-claims-tre-000117/?q=International+Convention+on+Limitation+of+Liability+for+Maritime+Claims+&xdate_min=&xdate_max=
[11] https://www.ecolex.org/details/treaty/international-convention-for-the-prevention-of-pollution-from-ships-marpol-as-modified-by-the-protocol-of-1978-marpol-7378-tre-000112/
[12] https://www.ecolex.org/details/treaty/international-convention-on-oil-pollution-preparedness-response-and-co-operation-tre-001109/?q=•%09International+Convention+on+oil+Pollution+Preparedness%2C+Response+%26+++++Cooperation+1990+
[13] https://www.ecolex.org/details/treaty/protocol-of-1992-to-amend-the-international-convention-on-civil-liability-for-oil-pollution-damage-1969-tre-001177/?q=International+Convention+on+Civil+Liability+for+Oil+Pollution+Damage+1992+

pollution damage may be brought directly against the insurer or other person providing financial security for the owner's liability for pollution damage. The tanker owner is normally entitled to limit his liability with only limited exemptions;

- **International Convention on Establishment of an International Fund for Compensation for Oil Pollution Damage 1992 (FUND) ratified on 6 December, 1999 and came into force on 6 December, 2000**[14]**:** The 1992 FUND Convention makes provision for additional compensation when compensation available from the tanker owner under the 1992 CLC is not available, is insufficient to meet all valid claims, or where the source is unknown but demonstrated to be persistent oil from a tanker. The FUND Convention has been transposed into national law through the Merchant Shipping (Merchant Shipping (Liability and Compensation For Oil Pollution Damage) Act 2024.

- **Protocol of 2003 to the International Convention on the Establishment of and International Fund for Compensation for Oil Pollution Damage (Supplementary Fund) 1992:** This protocol was acceded by Mauritius on 09 April 2024 and it entered into force on 09 July 2024. This protocol has also been given force of law in Mauritius through the Merchant Shipping (Merchant Shipping (Liability and Compensation For Oil Pollution Damage) Act 2024.

- **The International Convention for Bunker Pollution Damage 2001 (Bunkers 2001) was ratified on 17 July 2013 and came into force on 17 October 2013**[15]**:** The 2001 convention establishes a liability and compensation regime applying to pollution damage resulting from the escape or discharge of bunker (fuel) oil from ships. It also provides compulsory insurance for ship owners to cover their liability for pollution damage caused by bunker oil. The convention is in the process of being domesticated in the Republic of Mauritius.

[14] https://iopcfunds.org/wp-content/uploads/2018/06/Text-of-Conventions_e.pdf
[15] https://www.ecolex.org/details/treaty/international-convention-on-civil-liability-for-bunker-oil-pollution-damage-2001-tre-001377/?q=International+Convention+for+Bunker+Pollution+Damage+2001

1.7. Liability for Spill

Liability for a spill observes the “polluter pays principle" as defined in section 72 of the Environment Act 2024 and Section 55 of The Ports Act. Liability for pollution damage is governed by the International Convention on Civil Liability for Oil Pollution Damage. According to this Convention, the ship owner has strict liability for pollution damage caused by the escape or discharge of persistent oil from his ship. The liability being strict, it is therefore established even in the absence of fault on his part.

However, under the Convention, the ship owner is exempt from liability only if he proves that:

- The damage resulted from an act of war a grave natural disaster; or
- The damage was wholly caused by sabotage of a third party; or
- The damage was wholly caused by the negligence of public authorities in maintaining lights or other navigational aids.

The liability for spills from all other sources of oil pollution including container carriers, and bulk carriers, is governed by the provisions contained in the following pieces of legislation:

- Sections 72 of the Environment Act 2024;
- Part IX of the Merchant Shipping Act 2007 which describes the limitation and division of liability for maritime claims;
- Part XI Section 222 of the Merchant Shipping Act 2007 as amended by The Finance (Miscellaneous Provisions) Act 2023 addresses the financial liability of the owner, agent, operator or insurer of the ship with regards to the expenses incurred by the Government of Mauritius in taking preventive measures to protect the environment or mitigate such hazards or for the clean-up operations after an oil spill; and
- Article 1382 of the Code Civil Mauricien[16] which reads as follows: “Tout fait quelconque de l’homme, qui cause à autrui un dommage, oblige celui par la faute duquel il est arrivé, à le réparer.”

[16] https://www.ilo.org/dyn/natlex/docs/ELECTRONIC/88152/114145/F-172904586/MUS88152%20Fre.pdf

2. Assessment of Oil Spill Risk

2.1. Risk Assessment

2.1.1. The Mascarene Plateau

The Exclusive Economic Zone of the Republic of Mauritius, which is covered by this NOSCP, includes part of the Mascarene Plateau which is a significant Biodiversity Hotspot recognised by the Convention on Biological Diversity when the area was included as an Ecologically or Biologically Significant Area (EBSA). The plateau is the largest contiguous and unexploited shallow marine habitat globally which has regionally significant oceanographic features, a diversity of habitats, including coral reef formations, and significant aggregations of marine mammals and seabirds.

2.1.2. Marine Biodiversity

The main critical ecosystems of Mauritius include two species of mangroves, seagrass beds, algae (160 genera), coral reefs (159 species of hard corals) and 1,656 species and 290 families of marine species[17]. The algal flora is rich with over 160 genera of marine algae.

2.1.3. Oceanographic Setup

Mauritius experiences semi-diurnal tides with an average tidal range of 0.50 m during spring tides and 0.20m during neap tides. However, during annual spring tides (March and September) the tidal range is as high as 0.85 m. The wave climate is determined by the prevailing Southeast trade winds which generate waves of different magnitude and frequency all year round. Deep low-pressure systems in the high latitudes travel regularly towards the southern part of Mauritius generating high waves. The main ocean current influencing Mauritius is the South Equatorial Current which brings warm nutrient-poor water from the east.

2.1.4. Climate Change

Analyses of temperature recorded at Mauritius and its outer islands show a definite warming trend. Average temperature at all stations is rising at the rate of 0.15 °C per decade and has increased by

[17] https://nairobiconvention.org/clearinghouse/sites/default/files/National%20Marine%20Ecosystem%20Diagnostic%20Analysis%20%28MEDA%29%20-Mauritius.pdf

0.74 – 1.2 °C when compared to the 1961-1990 long-term mean[18]. During the last few years, an accelerated sea level rise between 5.4 and 8 mm/year has been observed.

2.1.5. Natural Disasters

As a SIDS, Mauritius has been classified as the 51st most exposed country to natural hazards[19]. Mauritius is exposed to natural disasters associated with tropical cyclones, torrential rains, storm surges, flash floods, wave surges, landslides, and tsunamis.

2.2 Marine Traffic

The Republic of Mauritius adjoins the western Indian Ocean maritime route with more than 75 percent of the world's maritime trade and 50 percent of daily global oil transfers passing through the region. According to the International Maritime Organization (IMO), around 35,000 vessels pass through this route yearly, carrying about 40% of global trade. Some of these vessels carry oil or other hazardous substances that could put them at risk to the marine environment in case of accidents. The coastlines of mainland Mauritius, Rodrigues and Outer Islands are therefore highly exposed to the risk of oil spills.

2.2.1 Areas To Be Avoided (ATBAs) around Mauritius and Rodrigues

The recommended Areas To Be Avoided around mainland Mauritius and Rodrigues was established in year 2020 under the MERCHANT SHIPPING NOTICE Ref: 21 of 2020 as a measure to reduce the risk of further marine casualties following the grounding of a cape size bulk carrier (MV Wakashio) on the South East coast of the Island of Mauritius whereby the vessel suffered structural failure which resulted in severe pollution damages to the marine environment. The ATBA are Notice to Mariners and as such are not obligations.

The restriction applies to ships of 150 gross tonnage and upwards and all vessels carrying hazardous wastes, nuclear materials or radioactive materials solely in transit as from the 1 December 2020.

The ATBA charts for mainland Mauritius and Rodrigues is at **Appendix 1** which contains the details for the establishment of recommended Areas To Be Avoided (ATBAs) around Mauritius and Rodrigues by vessels on innocent passage. The areas are designed to reduce the risks of

[18] http://metservice.intnet.mu/climate-services/climate-change.php#:~:text=Analyses%20of%20temperature%20recorded%20at,1961%2D90%20long%20term%20mean.
[19] https://www.unep.org/news-and-stories/story/mauritius-sets-goals-curb-triple-planetary-crisis

incidents by increasing the safety of navigation and additionally to protect the marine environment around Mauritius specially after the grounding and complete sectioning of the cape size bulk carrier.

The ATBAs are designed to decrease the impacts of international shipping around the coasts of Mauritius avoidance of those areas -

(i) provides a safe distance between ship lanes and the shoreline of Mauritius;

(ii) reduces the risk of shipping incidents and accidents resulting in marine pollution in particular oil spill;

(iii) allows time to mount a response to any potential marine emergency due to negligent navigation; and

(iv) protects the sensitive environment.

2.2. Potential Sources of Oil Pollution

2.2.1. Marine Sources

Most marine shipping incidents occur when vessels are moving close to other vessels, manoeuvring, crossing shipping lanes, or traveling close to land. Some operational incidents occur in areas immediately outside port areas during cargo or bunkering activities.

Eighty percent (80%) of marine oil spills occur within port or harbour areas. Oil pollution incidents at ports may also occur as a result of vessels sustaining damage from impacts during loading, unloading, bunkering activities, and berthing or unberthing manoeuvres. Such incidents can be caused by human error or misjudgement, by towline breakage, or by a tug experiencing engine failure at a critical stage in the final approach to the berth. Spills associated with these activities are likely to be minor spills (Tier 1), generally resulting in low levels of oil pollution contained within the harbour.

However, collision and grounding incidents can occur when vessels navigate close to land or on the approach to ports and harbours. This could happen due to an error in navigation, main engine failure or steering failure, weather, or a simple lack of knowledge of the vessel's position and or the position of submerged hazards. The probability of ship incidents grounding and collisions is lower than above but can result in spills of medium to major category (Tier 2 or 3).

Ship-to-ship transfer within the port limits is done mostly for ships calling at Port Louis for bunkering. Bunkering is supplied by floating barges by the private operators. With the proposal to transform Port Louis into a bunkering hub due consideration will have to be given to the marine, safety, security, and environmental aspects.

2.2.2. Land Sources

Potential land sources of spills are from oil terminals associated with ports during routine oil transfer operations. Other probable sources of the land spill may occur from rupture of pipelines, road tanker accidents, refuelling of storage tanks at petrol stations, and storage tanks on industrial sites. Tanks and pipelines being static, the probability of failure is low.

Typical inland oil spill scenarios are spills within a bunded area (from industries), leaks from a bund, product leakage into drains, road tanker roll-overs, overfilling of tanks, pollution following a fire oil spillage entering a watercourse and from pipelines from the fuel depot to different hydrants at different parking bay within the airport area.

The resulting oil spills from land sources are more likely to be minor spills (Tier 1).

2.3. Types of Oil Likely to be Spilled

2.3.1. Importation of Petroleum Products

The STC is responsible for the importation of all the country's requirements of petroleum products. These include the demands for the running of public transport, industrial and commercial activities, private motor vehicles, the need for the CEB in fuel oils for its power plants, the need for aircraft refuelling at the SSR International Airport, and the need for bunker fuels for international shipping.

The following quantities and types of oil products were imported by the STC in 2022/2023[20] except for fuel oil for which the figures for 1019/2020 have been used:

[20] https://www.stcmu.com/products/petroleum-products

Table 1: Quantities and types of oil products imported by the STC in Mauritius in 2024/2025

State Trading Corporation 2024/2025							
Category	*Non-Persistent White Oils*				*Persistent Black Oils/Fuel Oils*		
Type	Mogas	Jet A1	Marine Gas Oil	Gas Oil 10ppm	180CSTCC	180CSTSR	380CSTSR
Quantity MT	200,000	300,000	50,000	230,000	42,000	147,000	130,000

Source: STC[8]

2.3.2. Persistent / Non-Persistent Oils

A distinction is frequently made between non-persistent oils (White Oils), which tend to disappear rapidly from the sea surface, and persistent oils (Black Oils), which in contrast dissipate more slowly and usually require a clean-up response. Non-persistent oils may have higher evaporation rates contain more toxic components and present greater explosion and environmental impact risks linked to toxicity. Persistent oils may impact birds due to the presence of the surface slick and shoreline marine life by smothering if not removed rapidly.

2.3.3. Oil Properties

The most important physical properties that have a bearing on the behaviour of spilled oil at sea are:

- Density;
- Pour-Point;
- Viscosity;
- Volatility / Distillation Properties; and Toxicity.

Density: This physical property will determine its floating properties, volatility, and fluidity. The density (more precisely, the volumetric mass density; also known as specific mass), of a substance is its mass per unit volume. Thus, a relative density less than one relative to water means that the

substance floats in freshwater which has a specific gravity of 1. Most oils are less dense or lighter than seawater which typically has a specific gravity of 1.025.

Pour Point: It is the temperature below which oil does not flow. If the ambient temperature is below that of its "flow" point, the product behaves like a solid. This property is indicative of the oil's volatility. When oil temperature increases, some of its components reach their boiling point and are distilled.

Viscosity: Viscosity refers to resistance to flowing. Highly viscous oils flow with difficulty; conversely, oils that are less viscous are fluid. Viscosity is temperature-dependent and reduces as temperature increases, and diminishes at high temperatures.

Volatility / Distillation Properties: Crude oil or products are primarily composed of a mixture of hydrocarbons. When oil temperature increases gradually through fractional distillation, it is separated into many different parts or fractions that have similar boiling points. Some products are more volatile than others and when spilled into the marine environment may evaporate rapidly and form a flammable gas cloud.

A summary of oil types is enclosed in **Appendix 2**.

2.4. Probable Fate of Spilled Oil

The fate of spilled oil depends on several factors, such as the amount of oil spilled, its initial physical and chemical characteristics, the prevailing meteorological, wave, and tidal conditions, and whether the oil remains at sea or comes ashore. In this process, while the figures about the size of the oil spill are difficult to predict, a distinction is frequently made between non-persistent oils (White Oils), which tend to disappear rapidly from the sea surface, and persistent oils (Black Oils), which in contrast dissipate more slowly and usually require a clean-up response as described in Section 2.4.2 above.

2.4.1. Meteorological and Oceanographic Data

Mauritius enjoys a mild tropical maritime climate throughout the year. The country has two seasons: a warm humid summer extending from November to April and a relatively cool dry winter from June to September. The months of October and May are commonly known as the transition

months[21]. The latest weather and tidal prediction data are available online on the website of the MMS (http://metservice.intnet.mu/index.php).

The meteorological and oceanographic data that should be taken into consideration to determine the fate of oil are:

- **Wind** measurements linked to the southeast trade winds and exceptional events such as tropical cyclones in the summer season or anti-cyclones in the winter season. In the event of an approaching cyclone, the MMS will issue warnings ranging from Class I to IV, bearing in mind the number of daylight hours available before the onset of gusts of the order of 120 km/h. Only the latest wind speed measurements data is available on the website of the Mauritius Meteorological Services while the critical factor of wind direction is missing and should be provided by the MMS upon request in case of the event;
- **Wave height and period:** The Mauritius Meteorological Services issues warnings for high waves arising from heavy swells that have originated far from our region or due to storm tide arising from a distant storm/cyclone. As far as practicable, about 12 hours in advance, a Special Communiqué is issued to inform the public of any impending high waves based on observation available;
- **Storm surge:** A storm surge warning is issued when a storm/cyclone is evolving close to our region. It is usually embedded in the Cyclone Warning issued; and
- **Tidal predictions** are available on the website of the MMS http://metservice.intnet.mu/sun-moon-and-tides-tides-mauritius.php).

The availability of real-time meteorological and oceanographic data is critical in case of an evolving oil spill event.

2.4.2. Movement of Oil Slick

As a general rule, floating oil will move in the same direction and at the same speed as the tidal flow, but its movement will also be affected by the wind. Floating oil will move downwind at about 3% of the wind speed and 100 % of the surface current speed[22].

[21] http://metservice.intnet.mu/climate-services/climate-of-mauritius.php
[22] https://www.amn.pt/DCPM/Documents/Contingency.pdf

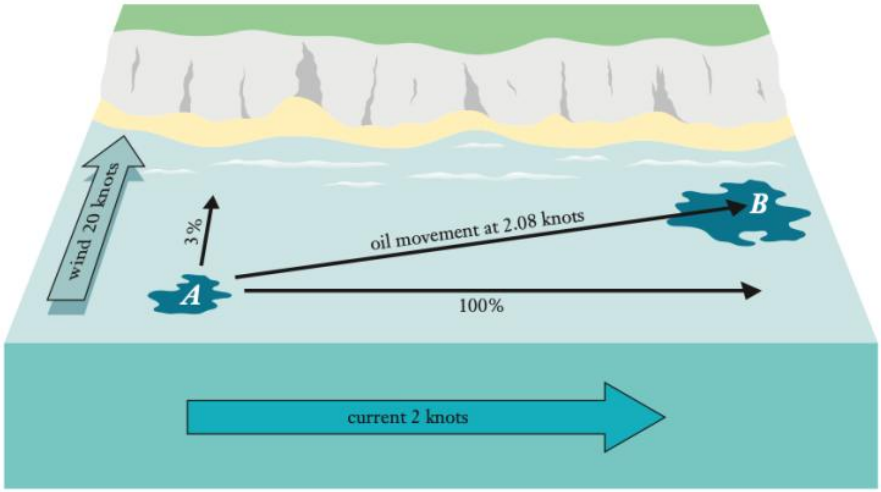


Figure 2: The combined influence of wind and current speeds on the movement of oil

In the first hours of the response, it is therefore critically important to have access to meteorological and oceanographic data on prevailing winds and currents to be able to estimate the drifting of the slick by drawing the resultant of the current and wind vectors on a map. These predictions need to be verified by aerial surveillance, and other appropriate sources of information based on the difficulty of predicting local current patterns. The predicted trajectory of an oil slick and changes in the oil's condition will be used to assess the situation and develop an appropriate strategy to deal with the incident to determine where the oil is going, what will be the state of the oil and which resources are at risk. Aerial observations and surveillance guidelines are included at **Appendix 3.**

2.4.3. Fate of Oil: Weathering

The fate of spilled pollutant depends on several factors in addition to its properties such as the amount spilled, rate or release, release location, release depth in the water column, prevailing wind, weather, and sea conditions; and whether the product remains free to spread out and separate or is confined by sea walls, ships, or the shoreline. When spilled at sea, the oil will normally break up and be dissipated or scattered into the marine environment over time. This dissipation is a result of some chemical and physical processes that change the compounds that makeup oil when it is spilled. The processes are collectively known as weathering as described as follows:

Spreading: The oil slick begins to thin out and spread very quickly after spilling. Within a few days, it will be only sheen on the surface.

Evaporation: The aromatic compounds in the oil begin to evaporate very quickly. Most of these compounds will have evaporated within the first few hours and they will be completely gone within two days or so. e.g., Gasoline will completely evaporate within a few days.

Dissolution: The aromatic fractions of the oil tend to dissolve somewhat in the early hours after a spill.

Oxidation: Exposure to sunlight changes the oil chemically. Oils react with oxygen either breaking down into soluble products or forming persistent compounds called tars. The formation of tars is caused by the oxidation of thick layers of high-viscosity oils or emulsions. This process forms an outer protective coating of heavy compounds that results in the increased persistence of the oil as a whole.

Dispersion: The oil breaks down into tiny droplets with rough wave action. This process can be enhanced with the use of dispersants. The smaller droplets adsorb particulate matter in the water, and this added weight pulls the droplets into the water column.

Biodegradation: The dispersed droplets are easier for oil-eating bacteria to metabolise or biodegrade, i.e., break down into harmless compounds.

Emulsification: Oils high in asphaltenes often form water-in-oil emulsions (or "chocolate mousse") after a few days. This frothy, voluminous layer of mousse is very persistent and can eventually contribute to the formation of tar balls, which later wash up on beaches.

Sedimentation: Heavy refined oil products having densities greater than seawater will sink to the bottom. Sinking usually occurs due to the adhesion of particles of sediment or organic matter to the oil.

The weathering processes are summarised in the following figures:

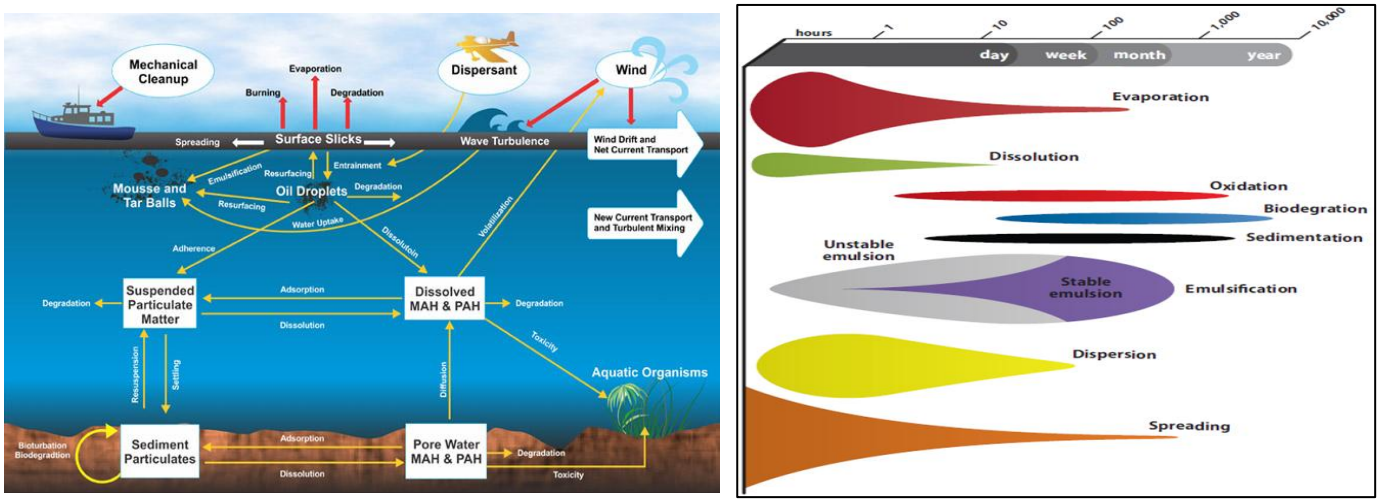


Figure 3: Oil weathering processes

The condition of spilled oil will vary with time and information must be regularly collected from the site regarding the nature of the oil. Response options should therefore be flexible and adapt to changing circumstances accordingly.

2.5. Development of Oil Spill Scenarios

2.5.1. Most Probable Spill Risks

The most probable sources of oil pollution are related to offloading of tankers, bunkering operations in Port Louis harbour, and pipeline leakage or rupture. Spills associated with the discharge of oil during normal operations in the harbour involving the shutting down of a pump are likely to be classified as Tier 1 incidents.

2.5.2. Maximum Credible Event

The probable credible spill volume and tier level related to the type of incident are indicated in the following table:

Table 1: Probable tier level based on the type of incident

Incident	Credible Spill in MT	Probable Tier Level
Two wing tanks of a 25,000 MT tanker were breached and one-third of the product in each released	1,000 MT	Tier 3
Two of the five bunkering tanks of the barge breached and one-third of the product in each released	66 MT	Tier 2
Rupture of a transfer hose or overflow of a ship's tank during inner harbour bunkering (Flow 300 MT/h)	25 MT	Tier 2
Leak of pipelines on land	10 MT	Tier 1

2.6. Shoreline Resources, Priorities for Protection

2.6.1. Defining Priorities

If all the resources being considered are sensitive and valuable, the prioritising process should address those likely to be oiled, i.e., those that have a high risk of exposure. Highly sensitive resources in locations that are not likely to be threatened by an oil spill may be listed with a lower priority for protection, even though they are highly sensitive. Effective response during the early hours of a spill is essential to reduce the potential spill damage. Oil spill combat equipment should be deployed immediately after a spill occurs by the first responders. Response time can be significantly reduced if protection priorities are already established.

The relative ability of the oiled resources to recover is another important prioritising guideline. Resources are considered to be sensitive if they are likely to endure long-term impacts resulting from exposure to oil spills. Therefore, during an oil spill, those resources likely to require longer periods of recovery should receive higher priority for protection. The priority of a site can change seasonally because of changes in the distribution of natural resources or their sensitivity. In particular, seasonal sensitivity will vary with the presence of large concentrations of migrating or over-wintering birds in a wetland, or when early life stages are in shallow waters or concentrated in susceptible habitats, such as intertidal spawning beds. Other sites will be of high priority year-round such as our tourism assets, fishing grounds, and other economic assets.

2.6.2. Shoreline Sensitivity Mapping (SSM)

The development of Sensitivity Maps (SM) is a key activity in the planning process[23]. SMs provide a concise summary of coastal resources that are at risk if an oil spill occurs nearby. Examples of at-risk resources include biological resources (birds, fish, seagrass and algal beds, coral reefs), sensitive shorelines (such as coastal marshlands, intertidal mud flats, and mangrove areas), and human-use resources (such as public beaches, tourism infrastructure, and fishing grounds).

Sensitivity Maps consist of Coastal Maps, Tactical and Operational Maps (CSATOP). The Ministry of Environment reviewed the CSATOP for Mauritius under several project and updated maps for Mauritius and Rodrigues were finalised in 2025 and were also migrated on GIS. Maps for Mauritius were produced in 15 segment and for Rodrigues in two segments. An extract of same is at **Appendix 4.**

To further enhance preparedness and response for mainland Mauritius, 19 Tactical Sheet Folios (TSF) were developed for the Port Area (from Le Goulet to Albion), for South East Coast (from Pointe du Diable to Blue Bay) and for the North West Coast (from Cap Malheureux to Post de Flacq). The TSF is a strategic plan depicting sensitive areas to be protected with a response strategy predefined prior to an oil spill including the resources required for an effecting response. The TSF would also be used for field training exercise to enhance preparedness. An extract of TSF for the North West Coast is at **Appendix 5.**

The maps are classified as follows:

Table 2: Classification of sensitivity maps

	Strategic Maps	**Tactical Maps**	**Operational Maps**
Who is it for?	Planners and decision-makers	Incident managers and responders	Responders
How does it help?	Clear identification of the most sensitive sites	Identifies sensitive environments that may be affected by an oil spill	Provides site-specific information
	Aids prioritisation and response strategy development	Identifies all the necessary environmental, socio-economic, and logistical information to plan and implement response operations	Reproduced in a suitable format for use in the field Optional, only developed for the most sensitive sites

[23] https://response.restoration.noaa.gov/resources/environmental-sensitivity-index-esi-maps

What does it include?	Vulnerability ranking of shoreline, based on:	Shoreline type/sensitivity (ESI)	All logistical and operational information, such as:
	Shoreline type/sensitivity (Environmental Sensitivity Index (ESI))	Protected areas	Booming plans
	Habitats, species, and natural resources	Sensitive biological resources, such as endangered species	Location of equipment stockpiles
	Socio-economic features	Sensitive socio-economic features, such as aquaculture, ports, and villages	Access points and designated zones
Scale	Small scale, typically 1:1,000,000 – 1:200,000	Medium scale, typically 1:100,000 – 1:25,000	Large scale, typically 1:25,000 – 1:10,000

The following table summarises the sensitivity index assigned to each category of shoreline:

Table 3: Sensitivity index based on shoreline type

Shoreline type	Sensitivity Index
Exposed rock cliffs	Very Low sensitivity
Exposed beach rocks	Very Low sensitivity
Fine-grained sand beaches	Low Sensitivity
Coarse-grained sand beaches	Medium Sensitivity
Mixed sand and pebble beaches	Medium Sensitivity
Pebbles and Cobbles Beach	Sensitive
Boulders and Cobbles Beach	Sensitive
Sheltered raised fossil reefs and solid man-made structures	Sensitive
Sheltered tidal flats and vegetated low banks	Very Sensitive
Marshes and mangroves	Very Sensitive

A Very Low Sensitivity index represents shorelines least susceptible to damage by oiling and a Very Sensitive index represents the locations most likely to be damaged by oiling. Exposed rock cliffs have a very low sensitivity index, as oil cannot penetrate into the rock and will be washed off by the action of waves and tides. Shorelines ranked as very sensitive include protected wetlands marshes and mangrove areas. Oil in these areas will remain for a long period, penetrate deeply into the substrate, and inflict damage on many kinds of plants and animals

2.7. Special Local Considerations

2.7.1. Port Area

Although the risk of oil spill within the port area is high, it is balanced by the high level of preparedness in that area. Spills originating from port operations would trigger an adapted response strategy to prevent the oil from impacting the shoreline and affecting sensitive areas as follows:

- The relatively calm waters of the port area would enable if required, a full response using booms, skimmers, and sorbents;
- The Fort Victoria Power Station at Bain des Dames must be notified of a spill so that intakes of cooling water can be protected, monitored, or closed;
- Booms and sorbents must be used to protect mangrove and marsh areas at Grand River North West Bay, Rivulet Terre Rouge Estuary Bird Sanctuary, and Balaclava Marine Park;
- Oil that impacts adjacent shorelines must be cleaned up with minimal removal of sand to avoid potential erosion problems; and
- The Caudan and Port Louis Waterfronts must be protected.

The Port Louis Harbour Oil Spill Response Plan (PLHOSRP) caters for oil spill within the Port area. In case of a Tier 1 oil spill, this PLHORSP would be activated and in case of a Tier 2 or Tier 3, the NOSCP would be activated.

2.7.2. Coastal Marshlands

Coastal marshlands or wetlands are defined as: “areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres”. Coastal marshlands form in low depressions in the coastal backwash region behind sand dunes and berms or where lava flows have generally led to areas of low soil permeability and storage capacity. Marshes are wetlands that are dominated by herbaceous rather than woody plant species.

Coastal marshlands provide many important environmental services that remain largely non-monetized: flood mitigation, wildlife habitat, carbon storage, and paleontological values.

Access to wetlands is often difficult, affecting the reliability of the initial assessment of the location and quantification of stranded oil. In fact:

- Oil may enter deep into the vegetation where access for personnel may be either impossible or dangerous;
- Oil adheres to the vegetation, potentially killing the plant and animal life using the plant as a micro-habitat.
- Fresh oil will tend to penetrate the environment and affect groundwater; and
- Persistent oil may remain for long periods which can have negative impacts on the fauna and flora as well as groundwater in addition to acute impacts at the time of the spill;

Coastal Marshlands should be protected as a matter of **priority**.

2.7.3. Mangrove Areas

Mangroves are trees and shrubs that grow in saline coastal habitats including estuaries and marine shorelines of the tropics and subtropics. Mangrove forests support an abundance and diversity of plant and animal life. They provide unique ecosystem values such as storm protection, sediment retention, filtration, and carbon retention and they are used as natural nurseries by several marine species. This low accessibility to environmentally sensitive areas prevents oil detection using remote sensing or aerial surveys, affecting the reliability of the initial assessment of the location and quantification of stranded oil. In fact:

- Access to the edge of mangroves by shallow-draft boat is usually relatively easy. However, the high tide can push floating oil deep into the vegetation where access for personnel may be either impossible or dangerous;
- Oil adheres to the vegetation, potentially killing the plant and animal life using the plant as a micro-habitat. The actual mortalities will entirely depend on the type and severity of oiling;
- A small spill could result in a single ‘band’ of oil on vegetation at the high-water level. Larger slicks can result in multiple bands or entire coverage of the intertidal plant roots, with a much higher possibility of mortality;
- Fresh oil will tend to slide down vegetation and pool on mud at low water. The oil may not adhere to muddy sediment, but may penetrate the sediment via animal burrows;

- Open coast mangroves may have a storm-swash line of debris, which could protect the interior of the forest from oil;
- In areas sheltered (either protected from wave action or within the mangrove stand), persistent oil may remain for long periods (possibly years). This can lead to longer-term chronic effects in addition to acute impacts at the time of the spill; and
- Oil within the mangrove areas could have direct and indirect effects on the reproductive cycle of both fish and shrimp.

These areas must be protected **as a priority**.

2.7.4. Intertidal Mud Flats

Mudflats are sedimentary intertidal habitats created by deposition in low-energy coastal environments, particularly estuaries and other sheltered areas. Mudflats are highly productive areas that, together with other intertidal habitats, support large numbers of predatory birds and fish. They provide feeding and resting areas for internationally important populations of migrant and wintering waterfowl.

Oil spill surveys of intertidal mudflats which have not been colonised by mangroves are generally easy, either by remote sensing or by actual site visits. However:

- Oil may accumulate easily in those areas on the surface;
- Clean-up operations in those areas are difficult as they result in the scraping off of the top layer and the compaction of the sediment layers through trampling;
- Spilled oil may penetrate the substrate through the holes dug by foraging animals and crabs; and
- Accumulated oil could have direct and indirect effects on the reproductive cycle of animals such as crabs, polychaetes, and other components of marine biodiversity.

As ESAs, intertidal mud flats should be protected as a **priority**.

2.7.5. Sand Beaches

Sand beaches are formed through a dynamic process of sediment accumulation and ablation linked to tidal and sea surge oscillations. Beaches afford a wide range of ecosystem values and other benefits, including as a biological repository, scenic beauty, and coastal protection. Oil spill

surveys of sand beaches are generally easy, both by remote sensing and by actual site visits. The characteristics of oil spills on sand beaches are listed hereafter:

- Oil may accumulate easily in those areas on the surface;
- The removal of oil on sandy beaches results in trampling and the removal of the top layer;
- Spilled oil may penetrate the substrate through the holes dug by foraging animals and crabs; and
- Accumulated oil could have direct and indirect effects on the reproductive cycle of animals such as crabs, polychaetes, and other components of marine biodiversity.

However, sand beaches are scientifically considered as least sensitive areas and as a rule of thumb, they are therefore often used as sacrificial beaches as they will be easier to clean.

2.7.6. Seagrass and Algal Beds

While the vast majority of flowering plants are terrestrial, seagrasses are the only group of flowering plants that live entirely submerged in marine, fully saline environments, completing their entire life cycle, including pollination, while submerged underwater. Seagrass beds are rated the third most valuable ecosystem globally (on a per-hectare basis), only preceded by estuaries and wetlands. The habitat complexity within seagrass meadows enhances biodiversity and increases biomass. Seagrasses on reef flats and near estuaries are also nutrient sinks, buffering or filtering nutrient and chemical inputs to the marine environment. They also stabilise coastal sediments and act as a potentially important carbon sink as organic matter created by seagrass decay and discharged by rivers and creeks is trapped within the sediments. Seagrass meadows provide food and shelter for many organisms and are a nursery ground for commercially important prawn and fish species. The high primary productivity of seagrasses supports high productivity in associated fisheries.

Oil spill surveys of seagrass and algal beds are more difficult by remote sensing, requiring in-water surveys. In this case:

- Oil being generally less dense than water will tend to float above, except if it is put in emulsion or if dispersants are used;
- Seagrass beds located in the inter-tidal zone may be directly affected by spilled oil; and

- The rehabilitation of seagrass beds is difficult and technical, requiring high financial, technical, and manpower resources.

2.7.7. Coral Reefs

Coral reefs are extremely diverse marine ecosystems that are formed through the growth of corals, which are animals in the *Cnidaria*, or *coelenterate* family. Corals are typically colonies made up of hundreds of individual coral polyps. Coral reefs support over 4,000 species of animals and plants, including the corals themselves, other coelenterates, crustaceans, molluscs, fishes, and algae. A total of 159 species of coral have been reported from Mauritius. Coral reefs are important not only for the diverse life they support but also for numerous ecosystem services and products, including seafood, bioprospecting opportunities, recreational value, and coastal protection.

As for seagrass beds, oil spill surveys of seagrass and algal beds are more difficult by remote sensing, requiring in-water surveys. In this case:

- Oil being generally less dense than water will tend to float above, except if it is put in emulsion or if dispersants are used;
- The rehabilitation of coral reefs is difficult and technical, requiring high financial, technical, and manpower resources.

As ESAs have an intrinsic ecosystem, bio-prospection, recreational, and coastal protection values, coral reefs should **receive special attention** only if dispersants are used and if there are signs of emulsification of the spilled oil.

2.7.8. Sea Turtles

There are two species of marine turtles in Mauritius which are commonly encountered in shallow coastal waters. These are the hawksbill *Eretmochelys imbricata* and the green *Chelonia mydas*. The population trends on both the species are not known but they are believed to be declining. The nesting beaches for green and hawksbill turtles are found around St. Brandon, Agalega, and the Mascarene. The peak nesting period is in summer. The foraging and feeding areas take place in seagrass beds and coral reefs around Mauritius, Agalega, and St Brandon. The sea turtles are migratory species foraging in one area and nesting in another[24].

[24] https://wedocs.unep.org/bitstream/handle/20.500.11822/25892/Mauritius_MEDA.pdf?sequence=1&isAllowed=y

Sea turtles are mentioned in the IUCN Red List either as vulnerable, endangered, or critically endangered[25]. Sea turtles are generally affected by oil spills, as they can rarely be protected from ingesting or swimming within toxic oil slicks or seawater containing dispersants. Protection of sea turtles is therefore very difficult, but **rehabilitation facilities** may be set up accordingly.

2.7.9. Cetaceans

Marine mammals found in Mauritius EEZ include dolphins and whales. Seventeen marine mammal species have been recorded in Mauritian waters, mostly as they migrate to and from Antarctica to warm tropical waters for calving. Dolphins are encountered more frequently than whales, although the breeding and nursery grounds of the dolphins have not yet been located[26]. Cetaceans are generally affected by oil spills occurring in deep water areas or outside lagoons, as they can rarely be protected from ingesting or swimming within toxic oil slicks or seawater containing dispersants. Protection of cetaceans is therefore very difficult, but rehabilitation facilities may be set up accordingly.

2.7.10. Birds and Other Wildlife

While coastal birds and seabirds may be the most visible and reported wildlife affected by an oil spill, other wildlife including endangered flora and fauna and their ecosystems should also be considered including reptiles, endemic land birds, and migratory birds which could be affected directly or indirectly by pollution or the response operations. Birds are generally affected by oil spills occurring in intertidal mudflats, sand beaches and dunes, coastal wetlands and marshlands, or at sea, as they can rarely be protected from ingesting or entering toxic oil slicks or sea water-containing dispersants. Protection of birds and other wildlife is therefore very difficult, but rehabilitation facilities may be set up accordingly.

2.7.11. Fisheries and Other Marine Resources

Fisheries and marine resources are critical for the fishing sector. Fishing grounds would be at risk of oil or dispersant contamination in the event of an oil spill. The impact of oil spills therefore needs to be assessed based on thorough representative tests and analyses of fish samples. These activities would need to be considered as **a priority** due to their food security and socio-economic importance.

[25] https://www.iucn-mtsg.org/statuses
[26] https://wedocs.unep.org/bitstream/handle/20.500.11822/25892/Mauritius_MEDA.pdf?sequence=1&isAllowed=y

2.7.12. Tourism, Hotels, and Public Beaches

Tourism is the third pillar of the Mauritian economy, representing 19.5% of the GDP in 2019[27]. The industry could be seriously jeopardized in the event of major pollution both in terms of impact and reputation, both for hotels and boat operators. Moreover, public beaches may have to be closed to local people as well as tourists or access restricted for a specified time thus depriving leisure and recreational facilities to the public and income for those dependent on linked beach trade.

Priority consideration should therefore be given to these features for evacuation of residents to a safe location due to emission of volatile organic compounds which may have negative impacts on human health due to exposure.

[27] https://www.undp.org/sites/g/files/zskgke326/files/2023-06/undp_accelerator_lab_knowledge_product_may_2023.pdf

3.0 Notification and Reporting Procedures

Part V of the Environment Act 2024 which deals with Oil Spill and Environmental Emergency provides that: a public officer, an officer of a local authority, or any person, who is informed or otherwise made aware of an oil spill shall forthwith notify the Director and the Director General of the National Disaster Risk Reduction and Management Centre. Moreover, the owner of a spilled oil shall within one hour notify the Director and the Director General of the National Disaster Risk Reduction and Management Centre inform of the circumstances of the spill; and any action taken or proposed to be taken in relation to the oil spill and practical measures taken to prevent, eliminate or reduce the adverse effects of the oil spill.

All personnel in various industries and government agencies involved in tasks where it is possible to be the first to observe a spill, including but not restricted to ships' crew, aircraft crew, oil company employees, port personnel, and members of the general public, should be required to and be able to report a spill to the relevant authorities / emergency services listed at **Appendix 6: Emergency Contact List.**

All oil spills should be reported to the Director of Environment or any emergency service and recorded systematically.

The oil spill alert procedure is provided below:

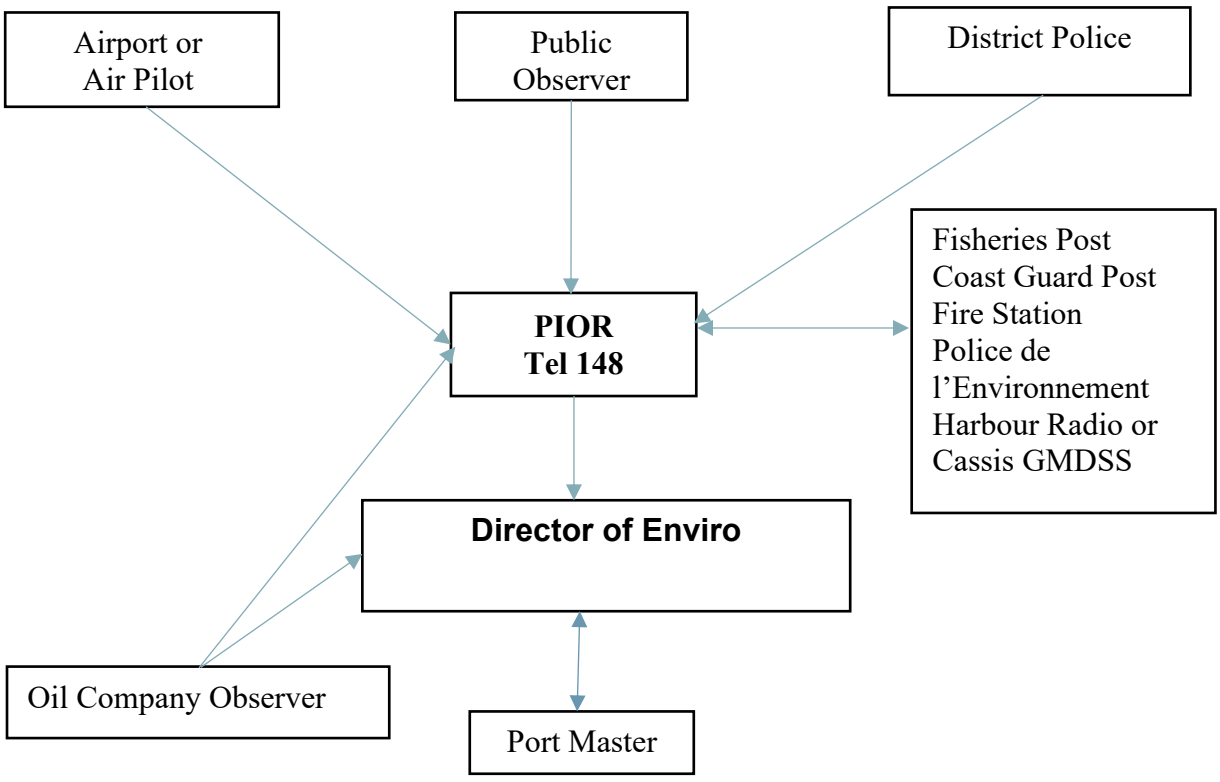
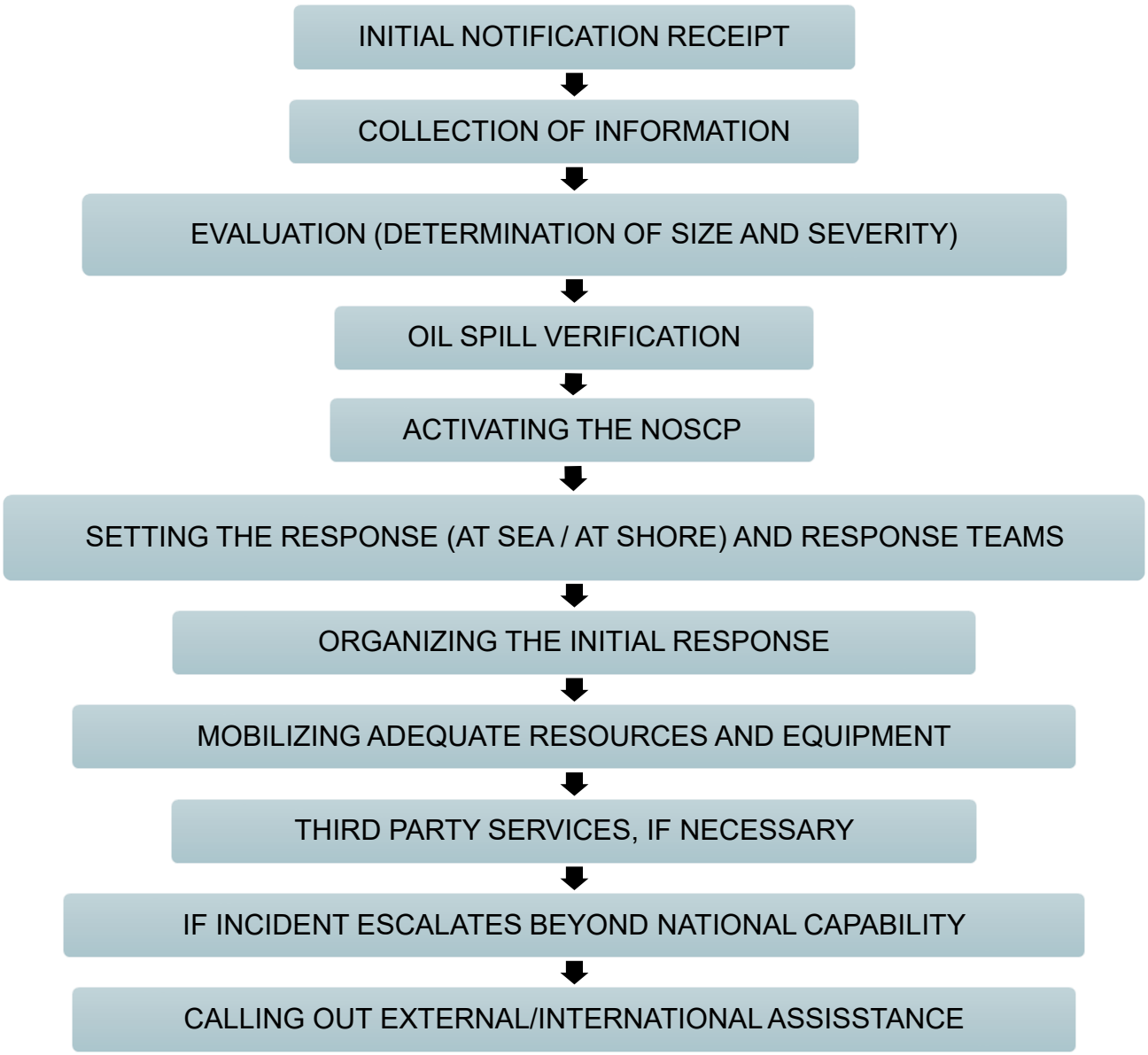


Figure 4: Oil spill alert procedure

Reporting of marine pollution incidents should contain at least the following information:

- details of the reporting party;
- contact details;
- observation date and time;
- exact geographical position or details of the sea area where the incident occurred;
- information pertinent to the incident (i.e. collision, grounding, explosion, fire);
- sea and weather state at the incident position;
- source of the pollution incident or reason for presenting a reasonable risk of causing marine environment;
- type and estimated quantity of oil discharged into the sea and likelihood of further pollution;
- initial actions undertaken for dealing with or limiting any oil spill adverse consequences.

Upon receipt of any notification of a pollution incident, the Director of Environment assesses the information received, investigates the information, and takes the decisions required for the response actions. The following flowchart describes in general the basic steps that should be followed in setting the required and appropriate response:

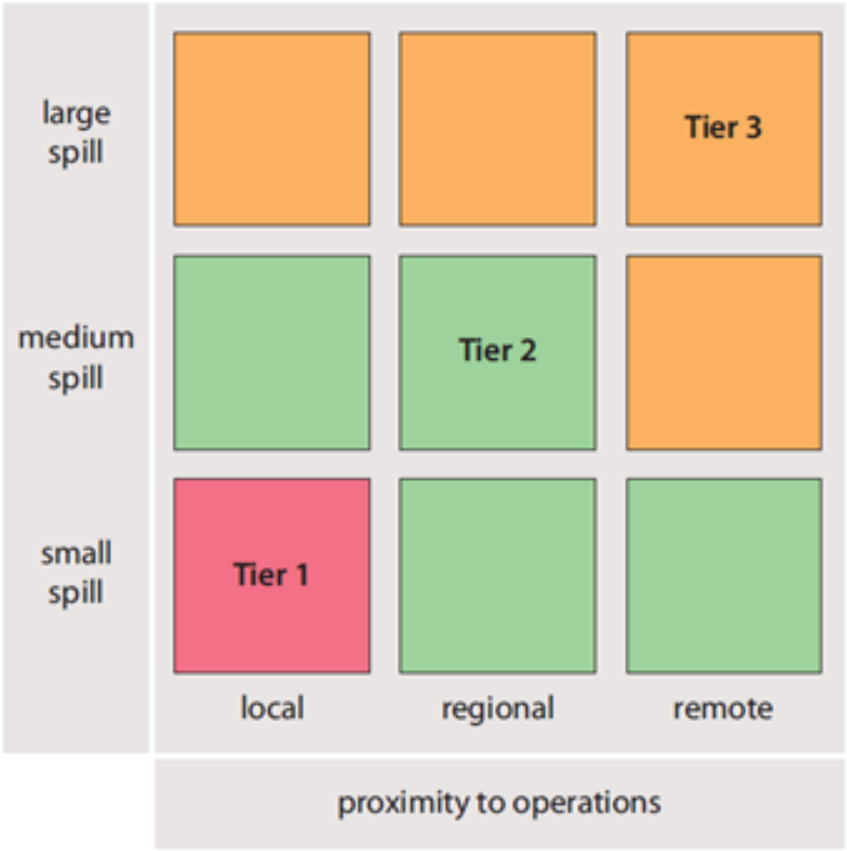

INITIAL NOTIFICATION RECEIPT
COLLECTION OF INFORMATION
EVALUATION (DETERMINATION OF SIZE AND SEVERITY)
OIL SPILL VERIFICATION
ACTIVATING THE NOSCP
SETTING THE RESPONSE (AT SEA / AT SHORE) AND RESPONSE TEAMS
ORGANIZING THE INITIAL RESPONSE
MOBILIZING ADEQUATE RESOURCES AND EQUIPMENT
THIRD PARTY SERVICES, IF NECESSARY
IF INCIDENT ESCALATES BEYOND NATIONAL CAPABILITY
CALLING OUT EXTERNAL/INTERNATIONAL ASSISSTANCE

4.0 Tiered Response Concept and Response Strategy

4.1Tiered Response Concept

In the early stages of an incident the quantity, potential quantity, pollutants characteristics, impact location, and other factors may not be well defined or in flux, but rapid decision-making is vital to begin the response by determining the level of response needed. Where there is any doubt, it is prudent to overreact until the situation can be clarified and the response adjusted if necessary.

The Tiered Preparedness and Response concept is used for all maritime pollution as the basis on which to establish a robust incident preparedness and response framework.



Graphic from IPIECA – Tiered Preparedness and Response

Figure 5: Tiered preparedness and response

The NOSCP should include a tiered response based on the following Tier concept:

Table 4: NOSCP Tier Concept[28]

Tier 1	Tier 2	Tier 3
An incident or event that can be managed and responded to by using the available resources (people and equipment) immediately to hand and which would not impact outside of the area covered by the contingency plan or require resources of neighbouring facilities or authorities.	An incident that is or has the potential to require resources beyond those immediately available and is or may impact areas outside the area covered by the contingency plan and or may require resources from neighbouring facilities or authorities.	An incident which requires, or has the potential to require, resources beyond those available under Tier 2 arrangement; and is or may impact areas outside the area covered by the contingency plan and or may require resources from neighbouring facilities, authorities, the wider region or international resources of equipment or personnel.
The maximum volume of pollutants that can be managed if spilled or at risk at Tier 1 should be clearly stated.	The maximum volume of pollutants that can be managed if spilled or at risk at Tier 2 should be clearly stated.	
Any weather, day, night, wave height, wind speed, or other limitations should be clearly stated.	Any weather, day, night, wave height, wind speed, or other limitations should be clearly stated.	

[28] https://www.ipieca.org/resources/tiered-preparedness-and-response

4.2 Tiered Response Level NOSCP

Table 5: NOSCP tiered response level

Response Level	Quantities of Pollutant Spilled or at Risk	Other Factors Taking account of the nature of the pollutant, incident location predicted weather and resulting movement as well as the principle of prudent initial overreaction. It is the potential impact of the pollutant, not the volume that is most important to consider in setting the initial response level.
Tier 3 Full and immediate activation NOSCP	**More than 100 tonnes**	Tier 3 Incidents are generally characterised by a degree of complexity that requires the Incident Coordinator to delegate all incident management functions to focus on strategic leadership and response coordination and may be supported by national and international resources. Regional and or international assistance on site of people and or equipment is or is likely to be needed. There is a clear threat to a designated environmentally sensitive area. The remoteness and logistics will need the full support of the NOSCP although the volumes spilled or at risk are limited. The polluter is requesting support and activation of the NOSCP beyond support with monitoring and evaluation. A cyclone warning has been issued which will complicate the response.
Tier 2 Immediate activation NOSCP	**Less than 100 tonnes** **More than**	Tier 2 incidents are complex in size, duration, resource management, and risk and may require deployment of resources beyond the initial response. Regional assistance on site of people and or equipment may be needed but international assistance on the ground is not likely to be required.

IC may direct some elements to stand down	**10 tonnes**	A request has been made for regional support and the NOSCP is to be activated to facilitate the mobilization of resources or to support that request. An incident or request for assistance has been received from an island in the Republic of Mauritius.
Tier 1 IC Will determine what elements of the NOSCP needs to be activated	**Less than 10 tonnes**	Generally able to be resolved through the application of local or initial resources only (e.g., first-strike capacity) An incident has occurred where pollution has been spilled or is at risk and the facility's contingency plan has been activated but support has not been requested and the NOSCP response will be limited to monitoring the response and any potential change in the situation. The report of an incident has been received but needs to be verified and will require some mobilisation to evaluate and confirm the pollutant, location, and scale. The source is unknown, but the volume spilled or at risk is believed to be less than 10 tonnes and requires only evaluation and monitoring support due to its location. Assessed as having a limited local impact which can be effectively managed by local resources and equipment with limited national support such as modelling, surveillance, and monitoring. The incident is beyond or may exceed the Tier 2 capabilities of the polluter's contingency plan, he does not have a plan or had not planned for this scenario or product. The pollutant is predicted (based on its properties and anticipated fate under expected weather conditions) to be eliminated by natural action or due to its distance from shore.

Note: During natural disaster emergencies (cyclones, tsunamis, high waves) the tier response will not be applicable and the response will be limited to observations.

The following table illustrates the level of mobilization depending on the Tier Level.

Table 6: Level of mobilization depending on the tier level

NOSCP + Assistance (+ installation)	NOSCP + Assistance (+ port)	NOSCP + Assistance	NOSCP +Assistance
NOSCP (+ installation)	NOSCP (+ port)	NOSCP	NOSCP +Assistance
Installation Contingency Plan	PHOSRP	NOSCP	NOSCP
Installation	**Port**	**Onshore**	**Offshore**
	Origin	**of incidents**	
Tier 1: Up to 10T	**Tier 2 : 10T to 100T**		**Tier 3: Above 100T**

NOSCP + Assistance (+ installation)	NOSCP + Assistance (+ port)	NOSCP + Assistance	NOSCP + Assistance
NOSCP (+ installation)	NOSCP (+ port)	NOSCP	NOSCP
Installation Contingency Plan	PLHOSRP	NOSCP	NOSCP
Installation	Port	Onshore	Offshore
Origin of incidents			

Tier 1: Up to 10T	Tier 2: 10T to 100T	Tier 3: Above 100T

NOSCP: National Oil Spill Contingency Plan

PLHOSRP: Port Louis Harbour Oil Spill Response Plan

5.0 Incident Management

5.1 Introduction

Effective incident management is essential for ensuring a rapid, coordinated, and efficient response to oil spills and other environmental emergencies. Two main approaches are commonly applied: the Incident Management System (IMS) and the Incident Command System (ICS). While both frameworks provide structured approaches to incident response, they differ in scope, focus, and applicability.

5.2 Incident Management System (IMS)

The Incident Management System is an organizational framework that defines how incidents are managed at the strategic and corporate level. It emphasizes coordination among management teams, government agencies, and response organizations. IMS ensures that policies, strategic objectives, and resources are aligned to support field operations.

Scope: Strategic and organizational level.

Focus: Coordination, communication, and high-level decision-making.

Stakeholders: Senior management, regulatory authorities, response coordinators, supporting agencies.

5.3 Incident Command System

The Incident Command System is a standardized, field-level structure for managing emergencies. It provides a clear chain of command and a modular organization that expands or contracts depending on the scale of the incident. ICS is widely recognized and applied in oil spill response because of its operational efficiency, clarity, and flexibility.

Scope: Tactical and operational level.

Focus: On-scene command, resource deployment, and response execution.

Stakeholders: Incident Commander, Operations, Planning, Logistics, Finance and Administration Sections.

5.4 Adoption of the Incident Command System

In oil spill emergencies, timely decision-making, clear communication, and efficient resource management are critical. The ICS provides a management system that organises the functions, key activities, tasks, and staff within the overall response. It is designed to transform the confusion of an incident (reactive) into a consistently well-managed incident response (proactive). The ICS is based on the five fundamental principles:

1. **Flexible** – the system can be applied across the full spectrum of incidents and agencies and the size and structure of the incident management team should reflect the complexity of the incident and change to reflect the various stages of response and recovery.
2. **Functional Management** – the response organisation can be structured, and personnel moved following the actual need, and work to be performed during the incident.
3. **Management by Objectives** – All stakeholders are expected to work to one set of common objectives set by the IC, and everyone should report to only one supervisor.
4. **Unity of Command** – The IC/SPC and IMT act on behalf of the nation not on behalf of their parent organisations' limited interests and share a common operating picture – ensuring a shared and consistent understanding of the incident and maintaining situational awareness.
5. **Span of Control** - Ensures no individual is overloaded or swamped by the number of individuals or functions that are reporting directly to them (from 3 to 7 people) and clear reporting relationships and information flows between individuals and sections within the IMT.

ICS is a modular management system designed to provide an effective response to any type of incident. It allows an Incident Management Team to expand or contract quickly without requiring a major re-organisation ensuring all necessary tasks are being completed promptly. The diagram below reflects the basic organisational functions of the ICS.

5.5 Incident Management Team

An Incident Management Team (IMT) is generally established to support the physical response and associated external issues of an incident. The IMT operates to support the on-scene response undertaken by the emergency response teams, maintain an organisation's key values, and inform the crisis management team of the incident.

The size of the IMT and the roles within it will be dependent on the complexity of the incident. For a small incident, the IMT will comprise the Incident Commander and Operations Section Chiefs providing a direct link to the on-scene response. The IMT is structured to the requirements of the incident and is scalable based on the complexity of the situation.

The IMT will:

- Assess the needs of the incident and identify problems and priorities;
- Assess the incident potential;
- Establish incident objectives, strategies, and tactics; and
- Provide direction and support to the response teams.

5.6 Incident Command Structure

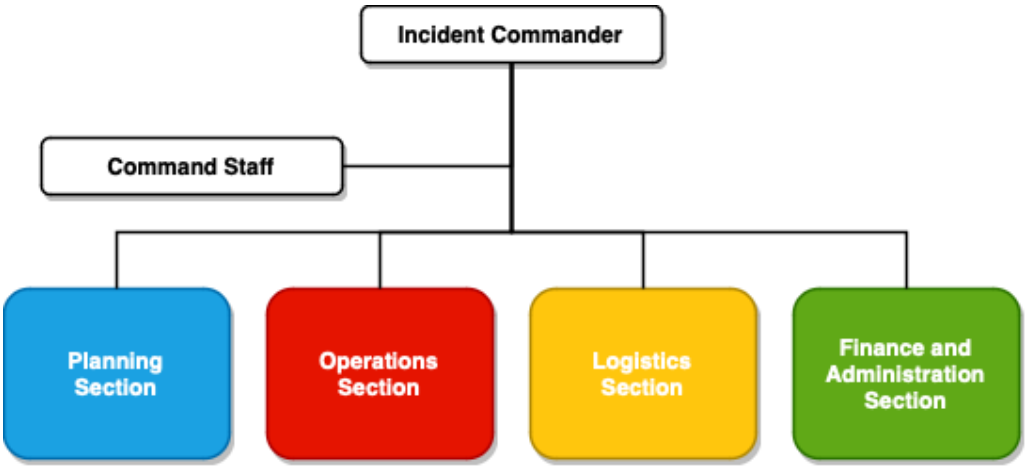


Figure 6: Main components of the NOSCP Incident Management System

In addition, sections are only activated as and when required. From the ICS basic layout, the team can expand and contract to meet the needs of the incident. The expanded ICS organisation structure would look as follows:

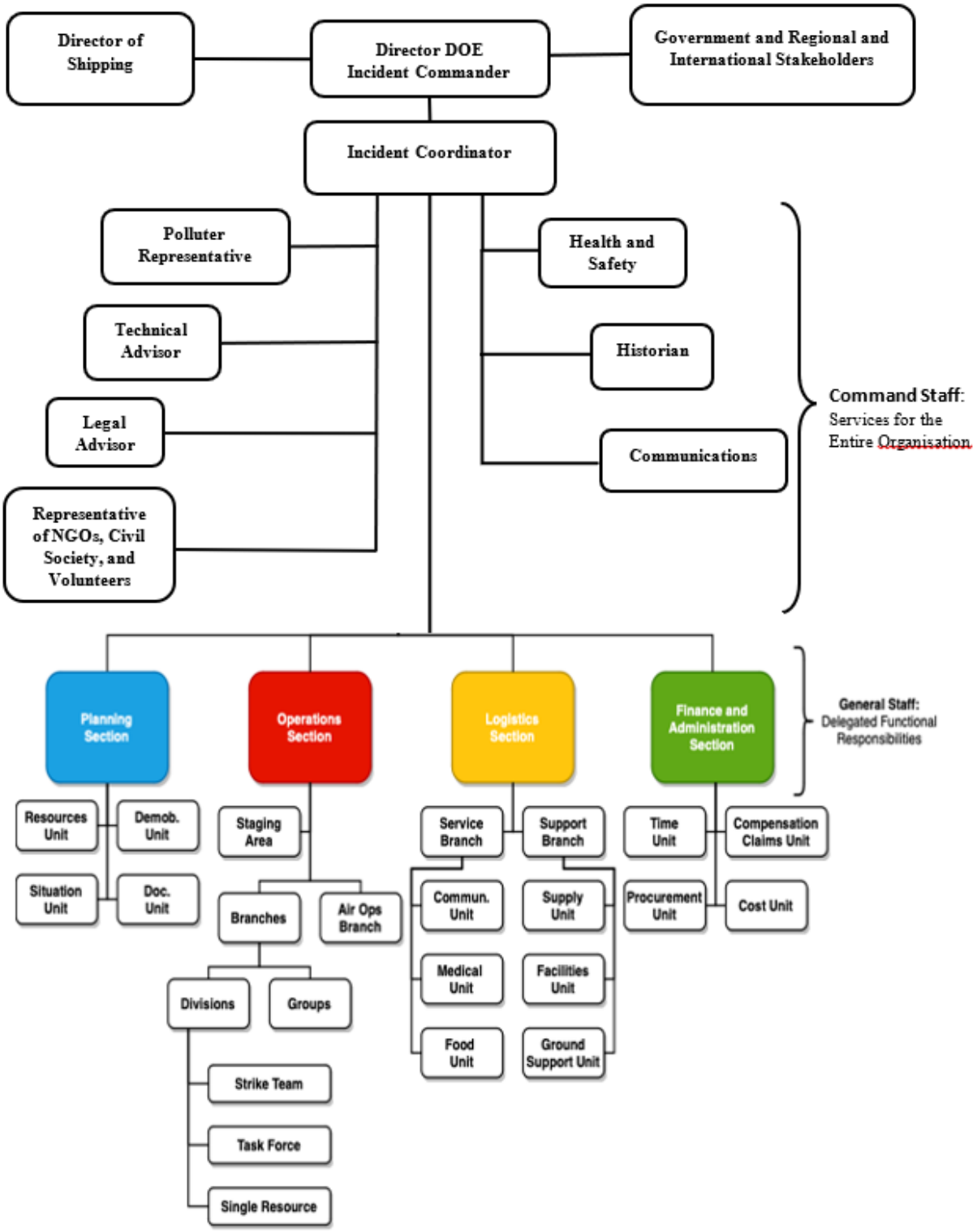


Figure 7: NOSCP detailed Incident Command System

Table 7: Functions of the different components of the IMS

Description	Function
Incident Command While a single Incident Commander normally handles the command function during small, straightforward incidents, an IMS structure may be expanded into a Unified Command (UC) for complex responses that cross jurisdictional boundaries or involve multiple agencies. The UC brings together the Incident Commanders of all major organizations involved in the response to function as a team with a common set of incident objectives and strategies.	The Unified Command (UC) is responsible for the overall management of the incident: directing incident activities, developing and implementing objectives and strategies, and approving resource orders and releases. Each UC member may assign a Deputy Incident Commander(s) to assist in carrying out Incident Command responsibilities. UC members may also be assigned legal and administrative support from their organizations. As a component of an IMS, the UC facilitates and coordinates the effective involvement of various agencies and responders. It links the organizations responding to the incident and provides a forum for these agencies to make consensus decisions. Under Unified Command, the various jurisdictions and/or agencies, as well as non-government responders, may blend throughout the ICS to create an integrated response team. Assisting or cooperating agencies that are not part of the UC can also participate through agency representatives working with the Spill Coordinator. Participation in a UC occurs without any agency giving up its authority, responsibility, or accountability.
Planning Section The Planning Section is staffed by experts and planning resource professionals who are responsible for developing operational plans and providing expert advice and technical information to the response organization.	• Compiles and prepares status reports; • Facilitates tactical (short-term) planning and strategic (long-term) planning • Compiles and prepares the necessary Incident Action Plans, the General Plan, and supporting documentation for all plans. • Prepares and coordinates strategies for a wide variety of functions, such as storage and disposal of liquid and solid oily and non-oily wastes, conducting shoreline treatment

The Planning Section is responsible for the collection, evaluation, and display of incident information, maintaining the status of resources, and preparing the Incident Action Plan and incident-related documentation.	assessment operations, generating maps, and planning demobilization activities • Interfaces with technical advisors and services supplied by contracted companies or by various governments. This ensures that the Incident Management Team develops strategies and plans based on common and up-to-date information.
Operations Section The Operations Section is responsible for all field-operating activities. In the initial phase of a response, they will handle their logistics and planning to facilitate the response quickly. As the planning cycle is established, the Operations Section is responsible for carrying out the response activities described in the Incident Action Plan. The Operations function includes the responsibility to manage on-water activities, shoreline work, aerial support (surveillance, spotting, etc.), and any special operations they are required to complete.	• Establishing the Operations Section • Establishing staging areas • Mobilizing and directing resources • Briefing the Incident Commander(s) on operations • Revising tactics in response to changing incident information • The Operational Phase follows the Initial Response Phase. This phase is characterized by a set operational period and a planned approach to the spill response driven by the development of the Incident Action Plan. Many, if not most, of the required Command and general staff positions will have been filled and tasks will begin to become routine throughout the Operational Phase. • The Operations function organizes and manages all response assignments directed at containing and recovering spilled oil, protecting sensitive resource areas, and treating impacted areas.
Logistics Section The Logistics Section is responsible for providing all support resources to keep the	• Acquiring and/or constructing and managing response and staging facilities

response operating at peak levels. It provides all support for purchasing, transportation, communications, and security. Logistics establishes and maintains the Incident Command Post, staging areas, and incident facilities such as bases, camps, and housing facilities.	• Securing and arranging for the housing, clothing, and feeding of response personnel • Obtaining, inspecting, and maintaining equipment • Providing strategic and tactical air, land, and water transportation resources • Obtaining communications equipment and setting up and maintaining communications networks • Ensuring the security of personnel and equipment • Providing medical services and input to the development of safety plans • The handling of waste materials • The organization and management of demobilization efforts • The Logistics Section secures the equipment and personnel needed to carry out response services and keeps the equipment and response personnel operational in the field.
Finance / Administration The Finance/Administration Section monitors all activities concerning time and billing, as well as ensuring that the response operations are audited. It ensures all expenditures and commitments are subject to strict controls to ensure they are properly documented for asset control and invoicing purposes.	• Accounts for expenditure, claims, and compensation; and • Procures needed resources. • Must work closely with all sections to ensure all costs are documented. They must fiscally manage the incident to include contracting, administrative functions, and assisting the Responsible Party's Claim Centre if requested. • Processes purchase orders and invoices, tracks receipt and distribution of resources, monitors costs, audits contractor attendance and provides the IC with regular, accurate, and up-to-date reports on response expenditures and commitments.

Note: *More detailed information is provided in Part B: Operational Procedures, Section 1: ICS Organisational Structure and Elements*

5.7 The Response Planning Cycle

The response planning cycle is used to illustrate and guide IMT members on the steps which are followed from initial notification into a response planning cycle eventually to demobilisation. Daily, the collated information should be considered by the IMT and based on the objectives set by the IC, strategies, and tactics determined, priorities set, operations resources identified, logistics needs determined, finance and administrative arrangements completed, and the resulting IAP presented to the IC/SPC by the heads of each section or their alternate. During the life of the incident, the response planning cycle may fall into a regular pattern and even begin to output IAP which can cover several days and allow the process to be reduced from daily to weekly. An example of an Incident Action Plan is provided in **Appendix 7.**

In this diagram, the Initial Response Phase (the "leg of the P") begins the moment ICOM is notified about a spill. Over the subsequent four to 72 hours (depending on the size and complexity of the spill), an Incident Management Team is activated. During this phase, the focus is on containing the source of the spill and cleaning up the spilled product. If it is a small spill, the response typically begins and ends with the Initial Response Phase. However, if the incident is large or complex and is expected to take several days or longer to manage, the Incident Management Team launches the Planning Cycle to proactively plan for the next stage of the response.

The Planning Cycle (the "head of the P") is implemented every operational period for the duration of the response. An operational period typically lasts for 12 or 24 hours and is set by UC during the Initial Response Phase. The Planning Cycle is a highly structured process focused on the creation of an IAP, which is implemented during the next operational period. The IAP outlines the response objectives set by the Unified Command for that operational period and details the specific actions that will be taken, including which sections and teams are responsible, for achieving the objectives.

However, at some point, the need to start to demobilise (resources or activities) will occur and this can be difficult to manage as IMT members will be less familiar with this, and deciding to demobilise can be harder to agree.

Figure 8: Response planning cycle in case of oil spill[29]

While a single Incident Commander normally handles the command function during small, straightforward incidents, an ICS structure may be expanded into a Unified Command for complex responses that cross jurisdictional boundaries or involve multiple agencies. The UC brings together the Incident Commanders of all major organizations involved in the response to function as a team with a common set of incident objectives and strategies. Actual Unified Command for an incident will be determined on a case-by-case basis, taking into account specifics of the incident or decisions reached during the initial meeting of the Unified Command. The makeup of the UC may change as an incident progress to account for changes in the situation.

The UC is responsible for the overall management of the incident: directing incident activities, developing and implementing objectives and strategies, and approving resource orders and releases. Each UC member may assign a Deputy Incident Commander(s) to assist in carrying out

[29] http://coastalresponse.ca/wp-content/uploads/2020/11/Marine-Oil-Spill-Response-Community-Guide-Web.pdf

Incident Command responsibilities. UC members may also be assigned legal and administrative support from their organizations. As a component of an ICS, the UC facilitates and coordinates the effective involvement of various agencies and responders. It links the organizations responding to the incident and provides a forum for these agencies to make consensus decisions. Under Unified Command, the various jurisdictions and/or agencies, as well as non-government responders, may blend throughout the ICS to create an integrated response team. Assisting or cooperating agencies that are not part of the UC can also participate through agency representatives working with the Liaison Officer. The SPC may choose to establish sub-committees to consider issues that have been identified, develop solutions, and or make recommendations.

6.0 Spill Response Strategy

6.1 Philosophy, Objectives and Available Strategies

6.1.1 Philosophy and Objectives

Upon activation of the NOSCP, each SPC will set out his objectives, strategies, and tactics based on by taking into account the developing scenario (locations, weather, movement) and other conditions if applicable. The main objectives should include, *inter alia*, the following elements:

- To protect lives and the environment;
- To confirm the pollutant, quantity, and fate and prevent or slow the rate of further losses;
- To locate and recover any pollutant which may impact sensitive sites; and
- To prioritise the protection of nature reserves based on ESI maps.

The strategy to be adopted for the clean-up of oil spills in sea zones will be determined as a function of the following:

- The level of the Tiered response;
- The spreading and drift of the spill; and
- The state of the sea.

The Response Guidelines Structure flow diagram is enclosed as **Appendix 8** for ease of reference.

6.1.2 Available Strategies

The available strategies and their corresponding timeline are listed in the following table:

Table 8: Available strategies and timeline

Strategy Number	Response Strategy	Timeline			
		Hours	**Days**	**Weeks**	**Months**
Strategy 1	Monitoring and Evaluation				
Strategy 2	Sampling				
Strategy 3	Source Control and/or Salvage				
Strategy 4	Containment and Recovery				
Strategy 5	Use of Dispersants				

Strategy 6	Burning				
Strategy 7	Sinking				
Strategy 8	Pre-Cleaning and Preparation				
Strategy 9	Deflection and Protective Booming				
Strategy 10	Containment Booming				
Strategy 11	Shoreline Clean-up				
Strategy 12	Wildlife Response				
Strategy 13	Waste Disposal				

The Summary of Oil Spill Response Techniques is attached as **Appendix 9**.

The aforementioned thirteen strategies are described hereunder.

Strategy 1: Monitoring and Evaluation

Any report of an oil spill incident will require to be evaluated to determine if it presents a risk or not. The initial report will be followed by additional assessments to be carried out to locate, identify and characterise the risk. This process may need to be repeated regularly to confirm where the pollutant is located, how it is behaving, and whether it is moving in the predicted way in any case, even when it has been decided that no action was necessary. Monitoring and evaluation may include air quality characterisation because of the potential dangers of flammable, toxic gas clouds or strong smells.

The Oil Spill Observation Checklist is enclosed as Appendix 10.

Strategy 2: Sampling

The sampling exercise is an important step of the process to support informed decisions taken by the Incident Management Team, decisions which are taken, *inter alia*, using data about the type of oil and the level of contamination. Samples should be taken to provide verifiable, replicable, reliable, and legally valid proof and evidence during and after the oil spill response process. Samples are used for scientific purposes both to determine the level of contamination and the evolution with time and also to adduce evidence in the context of compensation issues to determine the prejudice caused.

Strategy 3: Source Control and/or Salvage

An important action to be taken initially to reduce the damage done by pollution is to limit the amount of loss and the rate of loss if it is ongoing. Sources on land, pipelines, and ships can all result in both initial spills of pollutants and ongoing release and even the potential for much larger losses if the conditions change or deteriorate. The control of the sources or salvage (rescue of a wrecked, damaged, or disabled from loss to the sea) is a vital activity and often the priority as its success will aid and reduce the need for many of the other strategies.

The salvage plan will focus on protecting people, stopping or reducing the loss of pollutants from the vessel, and stabilising the casualty so that it can be made safe and seaworthy to the extent possible. However, the situation may evolve, requiring additional actions taken in parallel to the actions taken by the IMT.

Strategy 4: Containment and Recovery

The main response strategy for floating pollutants is to physically contain (using a floating barrier, sweeping arms, or ship's hull) the pollutant, allowing the volume and thickness to increase, until it can be effectively recovered using a skimmer (a device that can recover the pollutant with minimum amounts of water). This strategy requires adequate work platforms, ships, and barges. The ability to contain and recover the pollutant will equally be dependent on the prevailing weather, location, and anticipated movement of the pollutant. The effectiveness of booms drops significantly in two cases: because of entrainment and/or splash-over and as the slick thickness is reduced.

Strategy 5: Use of Dispersants

Although containment and recovery actions should be taken in cases of oil spills, the application of dispersants may be considered in specific cases such as high seas (depth above 100 m) and areas where there is no sensitive ecosystem, after a thorough evaluation of the environmental impacts of the oil entering the water column as small emulsion droplets. A draft guideline entitled "Approval and Use of Dispersants in the Republic of Mauritius Maritime Zone" dated November 2021 is available. Application of dispersant would be subject to approval of the National Oil Spill Coordination Committee. (NB: Dispersant should not be confused with detergent/ liquid soap. Moreover, the use of detergent is not recommended).

Strategy 6: Burning

Some pollutants will burn readily and may form flammable gas clouds which may be ignited in the initial incident or create an ongoing risk. Where pollutants catch fire at or near the source, in shipping incidents and elsewhere the instinct may be to extinguish the fire. However, there may be scenarios where it is desirable to either allow the fire to continue or to deliberately ignite a fire to consume the potential pollutant. To be successful free-floating oil needs to be contained using specific booms. Once ignited the burn can be sustained for hours or extinguished quickly if any safety issues occur. The smoke generated and the residue of the burning process are both issues that need to be considered and managed. This strategy is not advisable in the context of this National Oil Spill Contingency Plan due to the prevailing wind conditions, safety risks, and the risks linked to the generation of heavy toxic smoke and fumes.

Strategy 7: Sinking

Some pollutants may sink immediately upon release to water while others may over time become denser and sink into the water column or to the seabed as they change over time or become mixed with wind-blown sand, dust, or other minerals in the water. Action to sink oil has been used in several responses and had some success although in some cases the oil was subsequently refloated by storms and wave action. The strategy of deliberate sinking is not recommended in the Republic of Mauritius but a strategy regarding sinking and how such pollutants would be located, quantified, monitored, and removed may be needed and used.

Strategy 8: Pre-Cleaning and Preparation

When it is expected or known that a pollutant will impact an area, it is advised to remove material that could become contaminated such as seaweed, timber, and other shoreline detritus to simplify the waste disposal process and potentially allow other actions to prepare and minimize the impact on the shoreline. However, in the case of sandy beaches, the action of raking the upper layers of the beach will make penetration of any pollutant more likely and the pre-cleaning operation needs to be avoided. Similarly, rip rap structures into which pollutants easily penetrate can be protected with absorbent booms, rolls, or plastic rolls.

Strategy 9: Deflection and Protective Booming

As mentioned in section 2.5.2. of this report, a floating pollutant or a sub-surface plume will move according to tides and wind conditions. Where it is anticipated that that movement might be towards the shore then booms (floating barriers) can be employed to either direct the pollutant:

- Away from or past an area;
- Away from an area into a location where other strategies can be effective;
- Into an area where recovery may be easier achieved; and
- Into an area to protect a more sensitive area.

Deflection and protection booming should seek to work with nature and look to enhance and use sites of natural collection rather than work against the natural movement of the pollutants. Booms have limitations and cannot be used in all locations, all types of weather conditions, or last once deployed without maintenance.

Strategy 10: Containment Booming

In the case where the pollutant has already impacted an area, it is advisable to hold it there while recovery operations are prepared, and undertaken, to secure contaminated response equipment or to prevent in remobilizing to impact on other areas. However, while containment booms are used to maintain the pollutant in the area, they may increase the time the pollutant is present in that location or may interfere with the natural ebb and flow of the tide, energy delivered by waves, or access for wildlife. Moreover, in shallow areas, containment booms may cause turbulence and an increase in sediment loading. These booms should therefore be removed as soon as circumstances permit. Containment booms are therefore more adapted to mangrove areas where human cleaning is limited, and natural recovery will need to be supported by the restoration of the free flow of water and waves. It is common to use this type of boom in areas where sheens could be released once natural forces are allowed to resume and biological activity breaks down the oil.

Strategy 11: Shoreline Clean-up

The severity of shoreline oiling will influence the requirements for, and level of, clean-up, which may be considered. This leads to a useful categorisation of potential clean-up operations into three stages:

- **Stage 1:** Removal of large amounts of gross oil floating at the water's edge;
- **Stage 2:** Removal of moderate amounts of stranded oil; and

- **Stage 3:** Removal of light oil, primarily for aesthetic purposes.

Where resources are limited, it is normal to focus on bulk removal in all locations stage1, before moving on to more detailed stage 2, and planned work stage 3. Where a pollutant arrives on successive tides it may be necessary to repeat the Stage 1 or 2 activity at the same location. If left the pollutant could cause further damage by penetrating the shoreline sediment, coastal vegetation, mud, and mangroves or by being remobilized to other areas. **A table summarising the guidelines for shoreline clean-up is enclosed as Appendix 11.**

Strategy 12: Wildlife Response

In the event of a maritime pollution event wildlife may be impacted directly at the incident location, at any point along the pollutants track to shore, or at a point of impact on the shore. In addition, wildlife could be impacted indirectly if the pollution affects food availability or disturbs, breeding, nesting, or roosting sites because of the response activities and access. In the situation where the pollution requires only a monitoring response as it is anticipated to naturally break and degrade the pollution may still have the potential to impact wildlife at the incident location or close to it and potentially be carried back from that location to a brooding or nesting locations where the wildlife response may need to be mounted. Wildlife response is an independent response that is not limited to the collection and cleaning of impacted wildlife but includes a much wider range of activities that will seek to prevent wildlife from contacting the pollutant by scaring, capture and removal, capture, triage, and cleaning, supporting recovery with feeding, transport and release and a full range of post-incident activities to support breeding, food sources and protection for the impacted wildlife. The Wildlife rehabilitation techniques to be adopted are detailed in **Appendix 12.**

Strategy 13: Strategy for Oil and Waste Storage and Disposal

Waste and Recovered pollutants, oil, contaminated debris, and contaminated beach material must be safely stored, handled, prepared for transport, recorded, and disposed of at polluted locations, when transiting through temporary storage sites and on to final disposal.

Suitable equipment, vehicles, temporary storage sites, and final disposal methods/points ideally will be identified, and their availability agreed upon with the relevant Authorities. However, given

the quantity, composition, nature of the pollutant, and the location of the incident are not known in advance rapid post-incident planning will be needed. In all cases, storage of waste should be done in a manner that is safe for public health and welfare, and the environment. Oil and waste storage and disposal will be carried out in line with the Oil Spill Waste Management Plan developed under the FAPS project. A summary of the Oil Spill Waste Management Plan is at **Appendix 13.**

6.2 Limiting and Adverse Conditions

Limitations to the use and performance of shoreline protection methods can be divided into three general categories: properties of the spilled product, physical and environmental conditions; and logistical constraints.

6.2.1 Spilled Product Properties

The properties of the spilled product will influence the selection and effectiveness of methods for shoreline protection. Response plans for very light refined products such as gasoline may consist primarily of short-term protection strategies for sensitive areas until the product completely evaporates. They must also take into account explosion potential, human health, and environmental toxicity. In contrast, a heavy fuel oil spill is more likely to reach shorelines and require strategies for long-term clean-up. Medium crude tends to emulsify into a viscous fluid, making the oil difficult to pick up with standard types of equipment. Specific response strategies for the types of spilled oil are listed as follows:

- **White Oils (Gas Oil, Dual Purpose Kerosene, Motor Gasoline)**: White Oils are low-viscosity distillate fuels, which evaporate, easily in warm conditions. Evaporation times of less than 4 hours are not uncommon. White Oils will spread rapidly into 'windrows' (fingers of oil aligned to the wind direction) and form a very thin slick/sheen. The only appreciable concentrations will be found at the downwind leading edge of the slick. **Strategy advice:** monitor and evaluate, allow natural dispersion to occur, and recover using sorbents if active response is appropriate. **Safety notice:** Most White Oils are highly flammable and stringent safety precautions should be observed. The area could also be declared hazardous by the authorities; and

- **Black Oils (Fuel Oil):** Fuel Oil is relatively viscous, and is prone to foaming light water-in-oil emulsions if the sea has sufficient mixing energy (e.g. moderate sea state). Fuel Oil does not evaporate readily and can require an active response if natural weathering is failing.

Strategy advice: monitor and evaluate, recover using sorbents if active response is appropriate together with containment and recovery.

6.2.2 Physical and Environmental Conditions

Physical and environmental conditions define the feasibility of mechanical protection methods.

- **Current:** Strong currents are probably the greatest single limitation to the effectiveness and performance of most protection strategies. Oil on the water's surface will move at the same velocity and direction as the current. Where floating oil being transported by a current encounter a boom placed perpendicular to the current, the oil begins to accumulate against the freeboard area of the boom. If the current velocity or towing speed normal, or perpendicular, to the boom, is over 0.7 knots, the oil that has accumulated against the boom may pass under it. This is called "entrainment." Fast currents may also cause oil to splash over the boom top. In most coastal settings, currents are caused by tidal changes whose alternating directions also complicate boom deployment. Please refer to Section 2.0 for the current system in Mauritius;

- **Waves:** Both swells and short-period waves affect the usefulness of protection methods by causing uneven surface areas that may hamper efforts to contain or direct floating oil. Once the boom begins to move erratically, performance drops rapidly. Further, the safety risk to personnel working in rough seas is a major concern. Short-period waves can severely limit the effectiveness of protection methods by splashing oil over booms, eroding barriers, and damaging equipment. Waves can cause problems even in some bays and estuaries with large effective fetches of open water, especially during storms. Large waves can be quite unpredictable and pose significant risks to response personnel operating boats on the water and equipment on the shore;

- **Tidal Effects:** The operators must study the tidal conditions carefully and be intimately familiar with local intertidal topography and near-shore bathymetry to deal effectively with the ever-changing tidal stages;

- **Wind:** Winds cause oil slicks to move at a speed equal to about three percent of the wind speed. Rapidly changing wind directions mean that responders have to attempt to move booms continually to meet the shifts in the oil’s movement, which decreases the effectiveness of the booms. Wind can also push against the freeboard area of the boom, possibly causing the boom to tip over or otherwise lose effectiveness; and

- **Water Depth:** Water depth affects the type of response equipment that can be deployed. Many types of protection strategies use vessels and anchoring systems that require relatively deep water for operation. However, deep water in high-current areas can create anchoring problems. Shallow-water areas are usually among the most difficult to protect because of access restrictions, equipment that is too heavy or big for manual deployment, or other complications. During low tide, the water in the lagoons in Mauritius is very shallow with exposed sand banks and corals near the reef.

6.2.3 Logistical Constraints

There are many logistical constraints in the proper and timely deployment of response and protection strategies. They generally fall into the following categories; equipment, personnel, training, and support.

- **Access:** Sites with limited access may require the opening of roads and using vessels and helicopters to transport equipment and workers to the site. Often, limited access requires using an alternative protection method. Exceptionally high tides affect site access. In the case of Mauritius, the passes are more easily negotiated at high tide;

- **Bulky and Heavy Equipment:** Much of the equipment used for oil-spill response is bulky and heavy. Movement to a deployment site requires tugs or large trucks and other material-handling equipment. Logistical issues must be carefully thought out to reduce deployment time and decrease downtime. The large size of the equipment and the common need for deployment in less-than-favourable conditions create a high risk of injury. Deployment of such equipment may cause further damage to the environment by extensive physical disruption and mixing the oil into the sediment, especially in areas without roads or other means of access;

- **Towing of Equipment:** Barriers such as booms are commonly deployed into the water at a convenient location and towed to their intended position for the protection strategy. However, many factors can affect a vessel's ability to tow a barrier, including water that is too shallow or current that is too fast, or unfamiliarity of the crew with the shoreline. Towing the barrier requires special boat-handling skills to avoid damage and to ensure proper positioning. Under optimum operating conditions, the boom should not be towed in sections longer than 300 metres. The boom may need to be doubled when longer lengths must be towed or positioned. Currents, wind, or seas may dictate either shorter lengths of boom or higher-powered vessels to accomplish the same task;

- **Positioning of the Equipment:** To make a protection strategy work, response equipment must be placed exactly where planned, in its correct configuration, and where it will require the least amount of maintenance. The response team must be well-organized and efficient, especially in dynamic coastal waters (e.g., with 150- 450 m of boom and anchors ready, for deployment in a one- to three-knot current). Otherwise, the current may move the boom into an unacceptable position. Repositioning boom is very difficult;

- **Equipment Tending:** All types of shoreline protection methods require tending to compensate for changing conditions (e.g., wind, tides, currents, and vessel traffic) and movement of the oil. Barriers usually do not function properly over long periods. Therefore, responders may have to move equipment around continually to maintain effective protection;

- **Required Personnel:** In the initial phases of most spills, there are a finite number of personnel who are trained spill responders with appropriate operational experience and safety training. The limited number of personnel immediately available for deploying and operating equipment may limit the method of protection itself, as well as the time required for deployment. The larger the spill, the more properly trained personnel and support equipment are required. Larger spills also take larger management organizations to provide direction. If a response is to continue 24 hours per day, two to three times as many personnel will be required because of the need to have trained, professional responders available. It is also necessary to have a pool of trained workers from which relief personnel can be drawn to prevent burnout and safety lapses;

- **Equipment Resources:** The amount of equipment available, however, is a known quantity. Equipment can normally be brought in from another location, but the delay may limit protection options due to the time required to get the equipment to the spill scene. Because time is usually the limiting factor, response organizations must cache equipment near potential spill locations. However, there will still be delays in placing the equipment in the water and towing equipment to the deployment site. Mauritius is a small island most of the equipment is located in the Port, which, is a high-risk area; and

- **Channel Traffic:** Maintaining shipping or other kinds of vessel traffic through navigation channels or waterways during a spill response is a difficult consideration because there is usually economic and political pressure to re-establish normal operations as soon as possible.

However, deploying booms and skimmers or constructing recovery sites can conflict with such traffic for several days. Issue of Navigational warnings requires authorisation of the Director of Shipping.

6.2.4 Recovery and Storage Capability

To reduce the chance of additional oiling, the spilled product must be recovered from the water surface as soon as possible. The lack of recovery and storage capability in remote areas due to inaccessibility is a difficult problem that requires extensive planning and strategy development. Environmental operating conditions (water depth, channel width) may require specialized recovery devices and may limit storage capacities.

6.2.5 Darkness

Oil recovery and equipment deployment is interrupted when darkness falls and resumed at first light. Response personnel have to anticipate conditions to be encountered the next day.

6.2.6 Power

Power is a consideration for many protection methods. Power is needed to operate open-water boom reels and lighting systems. Should power be lost, the entire operation could be severely curtailed.

6.2.7 Fuel

Boats, tractors, trucks, vehicles, skimmers, and pumps require fuel. Fuel shortages can limit the effectiveness of the response. Identify in advance adequate vessel, aircraft, and equipment refuelling stations.

6.3 Specific Constraints for Mauritius

Mauritius being a Small Island Developing State, faces specific constraints which are listed as follows:

- Shallow lagoon during low tide;
- Difficulty in combating oil spills outside the lagoon, especially during abnormal weather conditions;
- Restricted access through passes during low tide;
- Shortage of trained personnel and equipment;

- Limited storage capacity for contaminated waste both liquid and solid;
- Limited final disposal site (Interim hazardous waste transfer facility);
- Shortage of barges for recovery at sea; and
- Inaccessibility of the shorelines because of physical constraints and beachfront developments.

6.4 Strategy for Clean-up of Oil Spills for Sea Zones (High Seas)

The available strategies to be used for sea zones are listed in green in the following table, while the available strategies that should not be used are listed in red:

Table 9: Available strategies for sea zones (High Seas)

Response Strategy
Monitoring and Evaluation
Sampling
Source Control and/or Salvage
Containment and Recovery
Use of Dispersants
Burning
Sinking
Pre-Cleaning and Preparation
Deflection and Protective Booming; Containment Booming
Shoreline Clean-up
Monitored Natural Recovery
Wildlife
Waste Disposal

6.5 Strategy for Coastal Zones

The available strategies to be used for coastal zones are listed in green in the following table, while the available strategies that should not be used are listed in red:

Table 10: Available strategies for coastal zones

Response Strategy
Monitoring and Evaluation
Sampling
Source Control and/or Salvage
Containment and Recovery
Use of Dispersants
Burning
Sinking
Pre-Cleaning and Preparation
Deflection and Protective Booming
Containment Booming
Shoreline Cleanup
Monitored Natural Recovery
Wildlife
Waste Disposal

Beaches can sometimes provide natural collecting areas to remove oil from the sea surface. Booms and barriers can be used to contain oil, which has collected naturally in bays from escaping to pollute elsewhere. The toxic effects of oil on open shores are usually very short term and, after the initial kill, weathered oil does little damage to sub-littoral life. Cleaning activities can however be very damaging. On-shore treatment of oil should therefore generally be restricted to amenity areas or beaches where prolonged exposure could affect wildlife. Cliffs, rocky or pebble shores subject to wave action are often better left untreated.

Coral polyps are very sensitive to both oil and dispersants. Over submerged coral, oil will not harm, so it should be left alone. Where there is a danger of exposed coral becoming affected by advancing oil, dispersant, properly used, can be effective in preventing major damage. Once exposed coral has been oiled, it is probably best left alone for natural weathering and recolonisation to take place.

6.6 Strategy for Shoreline Zones

The available strategies to be used for shoreline zones are listed in green in the following table, while the available strategies that should not be used are listed in red:

Table 11: Available strategies for shoreline zones

Response Strategy
Monitoring and Evaluation
Sampling
Source Control and/or Salvage
Containment and Recovery
Use of Dispersants
Burning
Sinking
Pre-Cleaning and Preparation
Deflection and Protective Booming
Containment Booming
Shoreline Cleanup
Monitored Natural Recovery
Wildlife
Waste Disposal

In sheltered waters, such as estuaries, rivers, and harbour, the chances of physical recovery are better than in open sea since these are calm waters. Containment of oil will however remain a

major problem where significant currents exist. It is particularly important to establish in advance which areas require protection and the most suitable locations for laying booms. Where specific installations require protection, such as the intake of power stations or harbour, the selection of a suitable location where currents are not too severe could be accompanied by the installation of mooring points thus saving time in an emergency.

All wetlands, muddy estuaries, and salt marshes are ecologically and physically finely balanced. They tend to be of great ecological significance. Well-intentioned cleaning can do a great deal of irreversible damage. Vehicles should never be used in these areas, and even trampling by people in heavy boots can start erosion leading to loss of the marsh. The normal vegetation of a salt marsh usually regenerates through even a thick coating of oil.

Spilled oil will adversely affect mangroves primarily by mechanical disruption of the oxygen exchange, which takes place via their air roots. Spill clean-up in mangroves should be limited to the removal of free oil and any enhancement of natural water flushing which is possible. Mechanical cleaning, cutting of oiled growth, and use of chemicals are not recommended. As long as the area is not heavily oiled and wave action does not pound oil into the sediments, rapid biodegradation of the oil and recovery of the oiled area will take place.

6.7 Shoreline Protection Methods

Shoreline protection technology has not greatly changed or improved over the last ten to fifteen years. The basic methods are open-water recovery, floating booms, and solid barriers. Each of these is briefly described below:

6.7.1 Open-Water Recovery

Open-water recovery includes using skimmers on oil slicks and netting systems for tarballs and highly viscous oils. Skimming of uncontained slicks can consist of either self-propelled skimming vessels or towed skimmer units. Storage capability and time needed to offload are very important considerations in determining the effectiveness of oil recovery by skimmers. Historically, skimming efforts have recovered only 10-30 percent of the spilled oil. Skimming systems employing winged or towed booms increase the encounter rate with oil and improve the overall collection of the oil. Frequently, skimming is the only option in areas with very strong currents and water too deep to as convergence zones where the oil tends to accumulate in thicker concentrations. If the spilled oil emulsifies, skimmer performance usually decreases significantly. In areas of shallow water or strong currents, it may be possible to collect the oil and bring it to deeper water or low-current areas that have better skimmer access and higher recovery rates.

Towing speeds of the corralled oil must not exceed 0.7 knots; otherwise, the oil will be lost by entrainment under the boom. Towing should be with the direction of the current to reduce the relative speed of the oil and boom through the water.

6.7.2 Booms

Effective boom deployment depends on many factors, including working with shorter lengths of boom that are more manageable; positioning the boom correctly during the first attempt; and sealing the shoreline end of the boom so that the oil cannot get past at high water or under the boom when a gap forms between the boom and water surface, such as on a beach on a falling tide. Once deployed, the boom must be regularly maintained, including checking for wear and tear, ensuring that anchor lines are secure, repositioning anchors where there is excessive boom deformation, and repositioning the boom when currents change or the boom is ineffective.

Boom deployment is by far the most common method of protection. Booms are essentially devices placed on the water surface to form a floating barrier to oil slicks. The different types of **deflecting booms** available include (**Table 13**):

- **Beach booms**: prevent the oil from escaping along the beach;
- **Lagoon/shallow area booms (solid or inflatable)**: shallow-water boom is designed for deployment in very shallow water where traditional boom may foul on the bottom during low water levels. This boom's special features allow it to conform to the substrate so that it can continue to act as a barrier to oil during changing tides or lower water levels. Shallow-water boom is also effective in higher-current areas because the shallow skirt minimizes the drag in the current; and
- **High sea booms (solid or inflatable):** The open-water boom is the largest of all booms and is required in any offshore situation or when prevailing sea conditions dictate maximum protection. This boom size requires mechanical equipment for deployment, boats to position or maintain the boom, and multiple anchors for proper positioning. These booms are capable of generating very high loads when moored in even moderate currents, requiring substantial support vessels and highly skilled personnel.
- **Sorbent booms**: A sorbent boom is designed primarily to absorb or adsorb oil although it can act as a protective measure against thin oil sheens under very quiet water conditions. Circular sorbent boom readily rolls over in any current, making it an ineffective barrier to flowing oil, and is most effective with low-viscosity oils, such as diesel fuel. In any current, sorbent boom can contain only the thinnest sheens. It can be used alone to keep sheens away from marshes

and tidal flats where water depths are too shallow for booms. When used with conventional boom, sorbents can be placed outside of the boom to pick up small amounts of escaping oil (primarily sheen), or inside the boom to absorb small amounts of contained oil;

Table 12: Characteristics of common boom types[30]

Type of Boom	Flotation Method	Storage	Wave Following Property	Moored or Towed?	Ease of Cleaning	Relative Cost	Preferred Use
Curtain Boom	Inflatable	Compact when deflated	Good	Both	Straightforward	High	Inshore or offshore
	Solid foam	Bulky	Reasonable	Moored	Easy / Straight-forward	Mid-range to Low	Sheltered inshore waters e.g. harbours
Fence Boom	External foam floats	Bulky	Poor	Moored	Difficult/Medium; oil can become trapped behind external floatation or in the junctions of the chambers	Low	Sheltered waters (e.g. ports, marinas)
Shore-Sealing Boom	Inflatable upper chamber, lower chambers water filled	Compact when deflated	Good	Moored	Medium; oil can become trapped in junction of the chambers	High	Along sheltered intertidal shores (no breaking waves)

6.8 Strategy for Coral Reef Ecosystems

The available strategies to be used for coral reef ecosystems are listed in green in the following table, while the available strategies that should not be used are listed in red:

Table 13: Available strategies for coral reef ecosystems

Response Strategy
Monitoring and Evaluation
Sampling
Source Control and/or Salvage

[30] https://www.itopf.org/fileadmin/uploads/itopf/data/Documents/TIPS_TAPS_new/TIP_3_Use_of_Booms_in_Oil_Pollution_Response.pdf

Containment and Recovery
Use of Dispersants
Burning
Sinking
Pre-Cleaning and Preparation
Deflection and Protective Booming
Containment Booming
Shoreline Cleanup
Monitored Natural Recovery
Wildlife
Waste Disposal

Many factors influence the effect of an oil spill on an ecosystem and these must be taken into consideration when dealing with coral reefs. Some of the most obvious factors are:

- The amount and type of oil spilled;
- The degree of weathering of the oil before contact with corals;
- The extent of the contamination;
- The presence of other stress factors, such as high sedimentation;
- Physical factors such as storms, rainfall, and currents – the state of the tide during the initial contamination is very important;
- The nature of the clean-up operation;
- The type of coral; and
- Seasonal factors, e.g. coral spawning.

The goal of spill response in coral areas is the same as in any other habitat to minimize damages caused by the accident and any associated spillage. Choosing response methods carefully, with an understanding of the sensitivities of the reef environment, will minimize any additional impacts incurred from the clean-up. Skimmers and booms are the main options that can be used however:

booms should be positioned regularly so they do not damage shallow reefs and when anchoring booms care should be given not to damage corals.

Dispersants should never be used in these sensitive areas. Furthermore, it is recognized that these areas are not generally easily accessible, and **heavy clean-up operations may cause physical damage**. Care must be taken in any associated clean-up activity to minimize damage.

6.9 Strategy for Inland Spill

The available strategies to be used for inland spills are listed in green in the following table, while the available strategies that should not be used are listed in red:

Table 14: Available strategies for inland spill

Response Strategy
Monitoring and Evaluation
Sampling
Source Control and/or Salvage
Containment and Recovery
Use of Dispersants
Burning
Sinking
Pre-Cleaning and Preparation
Deflection and Protective Booming
Containment Booming
Shoreline Cleanup
Monitored Natural Recovery
Wildlife
Waste Disposal

The clean-up of inland spills should be first attempted manually with sorbent material and pumps due to the generally small nature of the incident (Tier 1).

6.10 Determination of Endpoints

Endpoints are specific criteria assigned to a segment or unit of oiled shoreline that stipulate when sufficient treatment effort has been completed for that segment or unit from a pre-defined endpoint.

Purpose of Endpoints: Establishing treatment endpoints for an oil spill response is an important and integral part of the management decision-making process, operational response, and determination of treatment completion.

The practical reasons for assigning shoreline treatment endpoints are to:

- Assist the spill management team in selecting treatment objectives and techniques for a specified area or segment of the shoreline before the response operation begins;
- Provide Operations supervisors with a clear objective or target so they can tailor their activities toward a known point of completion; and
- Provide an inspection team with criteria and standards with which to evaluate the condition of the shoreline and the results of the treatment activities for the response objectives.

Other important benefits of developing endpoints are to:

- Facilitate recognition and assessment of the various environmental, social, and economic factors that should be considered in the shoreline treatment decision-making process and assist in selecting appropriate and practical response options; and
- Facilitate recognition of the concerns of the various responsible parties and stakeholders and attempt to create a consensus between them. An effective and successful response is far more likely when all parties share the same expectation of what must be accomplished.

Basic Qualitative and Quantitative Techniques for Measuring Endpoints:

- **Qualitative Field Observations** are used to describe the presence or absence of stranded oil and/or the character of such oil, e.g., no observed oil, no mobile oil, no oiled debris, or no rainbow sheens. The determination of this type of endpoint is relatively easy and rapid with a simple descriptive output. Direct observations can be supplemented with still or videotape camera images taken from the air or on the ground;

- **Analytical Measurement Methods** typically require the collection of representative field samples of various media and subsequent analysis using instruments in a laboratory. Three types of analytical measurement methods are chemical analyses for measuring the concentration of oil-specific chemicals, toxicological analyses for measuring the response of test organisms to toxic effects, and organoleptic analyses to determine human detection of offensive odours.

An example of clean-up endpoints for shoreline types of the coastline of Mauritius is enclosed as Appendix 14.

7.0 Response Termination and Post-Spill Activities

7.1 Response Termination

In any marine spill response operation, a point is reached where the cost and effort involved in continuing clean-up operations outweigh the benefits to be gained. The Incident Commander, in consultation with On-Scene Coordinators and the members of the National Incident Management Organisation, should determine the point when further effort and expenditure become unreasonable and can no longer be supported on grounds of environmental effectiveness and cost.

The advice of the nominated scientific/environmental expertise, including any provided through external assistance, will be of paramount importance in determining when the environmental effectiveness of continued spill clean-up efforts does not justify continued expenditure.

7.2 Decontamination

Decontamination requires unique consideration concerning health, safety, and waste management, as well as supporting logistics. It must be implemented from the outset of response and be capable of handling the decontamination of personnel and the gross decontamination of equipment daily. As resources are demobilized from the response, more comprehensive decontamination will be required. To this effect, oiled equipment should be cleaned as soon as possible after use. Cleaning should be carried out in a controlled situation where run-off can be contained without causing further pollution of the environment.

Equipment cleaning methods include:

- High-pressure hosing;
- Steam cleaning (not on booms made of PVC);
- Applying dispersants and brush on heavily oiled booms; and
- Flushing pumps that have been used to apply dispersants with freshwater, immediately after use.

All oil collected from cleaning operations could be sent for recycling. Once cleaning is completed, all equipment that has been provided through external assistance should be cleaned, and inspected, before consultation with the assistance provider for returning/replacing the equipment. In addition to oiled sediment, water, and vegetation, spills generate a lot of contaminated clean-up material, including sorbents, debris, and clothing. Interim storage and permanent disposal options have to be defined. Disposal of contaminated materials to landfills simply moves the pollution from the

shoreline to another site. Accordingly, the work plan should include provisions for reducing the volume of material to be disposed of in landfills and should address options such as recycling, using waste oil in road asphalt, and removing excess liquid from the waste oil.

7.3 Demobilisation

The oil spill management team is responsible for ensuring that the scale of the response remains appropriate. As the needs of the response change, or as objectives are met, resources will need to be withdrawn from the response. Over time, the organization will be downsized as the response requirements diminish. This requires procedures for executing an orderly, well-documented process of demobilisation. Guidance should be provided on the prioritization of resources for demobilisation, keeping in mind cost-effectiveness and the most efficient utilization of resources.

7.4 Response Evaluation & Debriefing

As soon as possible after termination of clean-up, a full de-brief session should be held. The aim of the debrief session is not to assess the performance of individuals, but to evaluate the response and to translate any lessons learned into improvements to the NOSCP, to improve the effectiveness of any future spill responses.

7.5 Monitoring, Damage Assessment and recovery of expenses

Following a marine oil spill, it is necessary to conduct post-spill damage assessment and monitoring activities, to scientifically and quantitatively assess:

- Ecological damage;
- Impacts on commercial resources and activities such as fisheries and tourism;
- Recovery of the ecosystem; and
- Formulation for claims for expenses incurred and recovery / rehabilitation cost.

It is to be noted that Section (66) of the Environment Act 2024, provides for an Independent Monitoring whereby the Director of Environment may, after consultation with the National Oil Spill Coordination Committee, cause to be carried such monitoring of the environment, nature, extent and effects of discharges of oil spills as may be necessary; and determine the end points for monitoring exercises and termination of clean-up.

The information gathered will assist with:

- Determination of compensation claims;

- Better understanding of the effects of spills and the ability of the environment to recover from such effects;
- Better understanding of the effects and effectiveness of the various clean-up techniques used; and
- Identification of any necessary ongoing restoration and rehabilitation requirements for damaged environments and resources.

The responsibility for initiating and coordinating post-spill damage assessment and monitoring should generally rest with the MOE. The following general principles should apply to post-spill damage assessment and monitoring:

- The MOE should appoint experts in the field of ESEIA;
- Organisation of joint government/industry monitoring teams, to undertake coordinated, integrated studies;
- Assessment and monitoring should aim to be as quantitative as possible, and the basis of any qualitative assessments stated;
- Monitoring must be designed to be statistically valid and rigorous, with the levels of confidence clearly stated;
- Data collection should commence as soon as possible after the spill;
- The use of pre-spill baseline data, where available, is essential to the success of post-spill damage assessment and monitoring. All such data should rapidly be identified before the assessment and monitoring;
- The monitoring design should include the identification and monitoring of control sites;
- The monitoring design should include areas impacted by the spill, areas disturbed by clean-up activities areas used for the storage of oily waste; and
- All organisations involved in post-spill damage assessment and monitoring should keep detailed records of all costs and expenses associated with these activities.

7.6 Environmental Restoration and Rehabilitation

Following a spill, it may be necessary to undertake activities to restore and rehabilitate damaged ecosystems and resources, for example replanting mangroves killed by a spill, rehabilitating beaches damaged by clean-up activities, or transplanting coral to a high-use tourist area impacted by a spill. Responsibility for post-spill restoration & rehabilitation should generally rest with the MOE, MOAFSBEF, and NPCS. The following general principles should

apply to post-spill restoration & rehabilitation:

- Areas requiring restoration and rehabilitation should be identified during post-spill damage assessment;
- In determining the best options for the restoration and rehabilitation, techniques that seek to complement and make use of natural forces to the fullest extent possible should be selected, including the option of allowing natural recovery without active intervention;
- The effects and effectiveness of restoration and rehabilitation efforts should be assessed through rigorous monitoring, as part of post-spill damage assessment and monitoring activities; and
- All organisations involved in restoration and rehabilitation should keep detailed records of all costs and expenses associated with these activities.

8.0 Media Relations Plan

In the event of any oil spill incident triggering the activation of the NOSCP, the management of media relations will become paramount. The related media relations objectives of the NOSCP are listed hereafter:

- To provide the media (radio, TV, newspapers) with honest and accurate information at regular intervals throughout the incident; and
- To establish good relations with the media to ensure that the flow of information is controlled and the presentation of facts is not distorted.

The National Oil Spill Contingency Plan's objectives for dealing with the media during an oil pollution incident will be:

- To establish the competent authorities as a helpful, reliable, and knowledgeable source of information;
- To present an efficient and environmentally caring face to the media;
- To demonstrate a responsible approach and show that an efficient response strategy has been set in place; and
- To influence what the media write or say.

It is recognised that responsibility for dealing with the media during a Tier Two or Tier Three incident should be managed by a specific Media Liaison Officer. The latter will have the sole responsibility for handling the relations with the media.

9.0 Communications and Control

In the event of a major pollution incident, the Command Centre must have access to adequate communication facilities. These are internet, fax services, Very High Frequency (VHF) radio facilities, and Ultra High Frequency (UHF) networks to coordinate the response. The required communication and control equipment or facilities are listed as follows:

- Internet, Telephone, Fax, and cellular phones;
- Computers with internet facilities, with relevant simulation/modeling software;
- Whiteboard;
- Sensitivity maps;
- Admiralty Charts, Bathymetric Charts;
- Library (maps, reference documents, plans, charts, conventions);
- Photocopy machine;
- Meeting rooms (for different cells);
- Media room; and
- Separate workstations.

The required field communication equipment is listed as follows:

Table 15: Required field communication equipment

Marine	Air	Land
HF Radio	HF Radio	VHF Radio
VHF Radio	VHF Radio	Cellular phones with Internet access
UHF Radio	Data Link	
Inmarsat		

10.0 Financial Policy

In the initial stages of a spill incident, funds will need to be made available for the mobilization of equipment and response forces. Financial support would be solicited from the Government as and when required. To assist in the recovery of costs, detailed records of action taken, personnel and equipment deployed, and other resources used to respond to the incident, including detailed and complete records of all costs incurred must be kept by all parties. All meetings must be documented, and receipts of purchases preserved for future reference and for the preparation of claims. These detailed financial records, including all supporting information and documents, are required where a claim is to be made. In some cases, materials consumed might be from pre-existing stocks and the justification would then be to support the purchase of the replacement goods.

All costs need to be demonstrated to be technically reasonable and in preparing records all personnel should not only identify the cost but also indicate the incident-related need for the expenditure. Standard proformas and procedures for tracking costs and resource use if used will assist in the efficient and prompt preparation and processing of claims to the owners, P & I insurers, and or IOPC Fund.

The IOPC Funds have developed a series of criteria for establishing whether claims are eligible for compensation. The essential criterion is the reasonableness of the measures, based on an assessment of the facts available at the time of the decision to take them. The measures taken should be appropriate and offer a reasonable prospect of success. The cost of the measures taken should be reasonable and should not be disproportionate to the results achieved or the results that one could reasonably expect.

Section 222 of the Merchant Shipping Act 2007 has been amended to assign the financial liability for the expenses incurred by the Government of Mauritius in taking preventive measures to protect the environment or mitigate such hazards or for the clean-up operations after an oil spill to the owner, agent, operator or insurer of the ship. All claims for costs incurred by the Government (Ministries and other public entities) in respect of grounding, salvage, wreck removal of vessels, and other related claims shall be compiled at the level of each Ministry. The transmission of such claims to the insurer/owner shall be effected through the assigned Government agency/Ministry as deemed appropriate.

The Merchant Shipping (Liability and Compensation for Oil Pollution Damage) Bill 2023 was adopted by the National Assembly in 2024. This shall give the force of law to the International Convention on Civil Liability for Oil Pollution Damage (CLC), 1992, to the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, 1992, and the Protocol of 2003 to the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, 1992.

The CLC represents a first tier of compensation in the event of an oil spill from an oil tanker, which is paid by the owner of a ship that causes pollution damage as ships covered under this Convention are required to maintain insurance or other financial security in sums equivalent to the owner's total liability for one incident. Hence, in case of a spill of cargo oil from a tanker, initial compensation is payable by the ship owner and/or its insurers, usually a Protection & Indemnity (P&I) Club.

The second tier of the liability and compensation regime is provided by the Fund Convention (1992 Fund) system where the cost of the damage exceeds the limit of the ship owner’s liability, the ship owner is exempt from liability or the ship owner is financially incapable of meeting its obligations under the CLC.

Under the Fund Convention, the maximum compensation payable by the 1992 Fund is SDR 203 million (approximately GBP 220 million/MUR 11 billion), irrespective of the size of the ship and this also includes any sums paid under the CLC.

The 2003 Supplementary Fund Protocol provides a third tier of compensation on top of the amount available under the Fund Convention. The maximum amount of compensation payable under the Supplementary Fund is significantly higher in the event of an oil spill from a tanker vessel, i.e. to the tune of SDR 750 million (approximately GDP 812 million /MUR 43 billion), including the amounts payable under the CLC and Fund Conventions.

An Environmental and Socio-Economic Framework for Claims prepared under the FAPS project is at **Appendix 15**.

11.0 Manpower and Training

11.1 Manpower Availability

Manpower available for response operations in an oil spill comes from the following organizations:

- Owner of the pollutant (clean-up);
- Special Mobile Force;
- National Coast Guard;
- Mauritius Fire and Rescue Service;
- Oil Companies;
- Beach Authority;
- Ministry responsible for Local Authorities (Municipalities and District Councils); and
- Ministry responsible for the Fisheries Division.

The IC may hire additional labour from other sources if required from commercial cleaning operators. In the event of a major oil spill incident, assistance may likely be sought from overseas and following the procedures laid down in the Regional Oil Spill Preparedness in Eastern Africa and the Western Indian Ocean drawn up by the Nairobi Convention in 2020[31] and as per the International Convention on Oil Pollution Preparedness, Response, and Cooperation. Assistance from the Immigration and Customs Departments would be sought to expedite the temporary import of equipment and experienced personnel should the need arise.

11.2 Safety of Response Personnel

Personnel safety and health are prime considerations during incident response when safety issues can be more complex than those during regular industry duties. On Scene Coordinators should be aware that at all times human life, safety, and health are paramount. The degree of risk associated with response operations will depend on:

- Type and nature of oil spill;
- The extent of the spill;
- Location of the spill; (accessibility, sensitive environmental features, topography, etc)
- Circumstances of the spill; and
- Weather conditions.

[31] https://www.nairobiconvention.org/clearinghouse/sites/default/files/Regional%20Oil%20Spill%20Preparedness.pdf

Fresh crude oil and refined petroleum products are capable of giving off flammable gases. Therefore, fire and explosion remain a real danger to personnel and equipment, particularly when fresh crude oil and certain refined products are situated in confined locations. The following human safety and health hazards need to be considered in any oil spill response operation for both clean-up workers and the general public:

- **Inhalation:** oil spills can produce toxic emissions, particularly with lighter products such as gasoline and diesel;
- **Ingestion:** oil can enter groundwater and food supplies;
- **Skin contact:** oil can have toxic effects on the skin upon contact; and
- **Flammability:** oil can emit flammable vapours, particularly when lighter-end products are evaporating.

An ongoing medical surveillance programme should be implemented by the MOHT for first responders during and after the response to detect any health-related issue linked to the operations. Operations should be suspended or terminated if an unsafe condition arises during a response operation.

11.3 Training and Exercises

Training of key personnel is an essential component of contingency planning and preparedness. All personnel involved in spill response should have sufficient training to fully understand their responsibilities during a spill response, be capable of operating all equipment, and perform all duties allocated to them in a safe, timely, efficient, and environmentally safe manner. In-house training and exercises should be conducted by the respective organizations for personnel who would be involved in a response to the oil spill. The following training will need particular attention:

- Equipment handling;
- Incident command training;
- Claims preparation and handling;
- Media handling;
- Shoreline clean-up, aerial surveillance and monitoring;
- Plan preparation;
- Response strategies; and
- Use of the latest technology.

Exercises and response drills serve to evaluate the thoroughness and effectiveness of the response component of the Contingency plan under simulated conditions. Important elements of response capability to be tested are:

- Practicality (structure and organization);
- Communications;
- Equipment capability and response times;
- Adequacy of action plan; and
- Public, industry, and media relations.

Drills shall be conducted at sea or on-site using the resources that would be used in an actual spill. Hands-on experience with clean-up equipment and techniques shall be used where practical.

Types of exercises to be considered include:

- Deployment of selected equipment (as in a training exercise);
- Call-out of personnel who would be involved or contacted during a spill event (including other government department officers, port and harbour personnel, oil industry company personnel, etc.); and
- Full-scale exercises.

A desktop exercise and a drill should be held on an annual basis. Full-scale (including equipment deployment) exercises/ drills every two years to test the National and Regional Plans. This training may include practical and theory courses, on equipment, operations, maritime, and shoreline response, as well as the delivery of logistic, finance, and administrative services. The origin of funds covering the costs for the said exercises/drills will be determined by a specific inter-ministerial statutory committee.

Three levels of NOSCP training have been identified:

- **Level 1 – Operations Personnel** that is those undertaking onsite operations and activities**.** This would also include NCG, SMF, Ministry, Department, Industry, and NGO personnel who would be operating away from the command center as well as those in operation, planning, and logistics who would be determining the applicability and supporting any such activities. The training should include training related to the recognition and quantification of pollution and the safety and health issues during investigation or operations. Equipment training can

include observers but should limit the number of personnel actively practicing a deployment to what would realistically be available in an actual deployment.

- **Level 2 – Incident Management Team members** that is those responsible for managing the response, section officers, NCG, SMF, Ministry Department, Industry and NGO personnel who would be in the planning, operations, logistics, and finance section or general staff technical advisers (environment, science, etc.) and managing and planning response activities.

- **Level 3 – Senior Incident Management Team members** including ICs/SPCs, On Scene Commanders, Section Chiefs and NCG, SMF, Ministry Department, Industry, and NGO personnel involved in high-level decision-making in the prevention, management, and recovery from maritime pollution events.

The NOSCP will be exercised on an annual basis, with the exercise location, and scenario changing each time as far as practicable. The NOSCP exercises will be open to observers from other countries within the region.

12.0 Equipment, Supplies, and Services

The equipment requirements are defined based on the assessment of risk, the necessary collection of data, and the development of response strategies. The performance of the oil spill equipment is related to specific local circumstances and will depend on several factors, including but not limited to weather and sea conditions. A selection of equipment and products should be available to meet the demands of a well-prepared contingency. Moreover, the Equipment for combating oil pollution should be treated as emergency equipment. This equipment should be maintained and kept in a state of readiness through regular inspection, maintenance, and testing.

The need to transport and deploy oil spill equipment needs to be evaluated. This can be achieved through field deployments during exercises.

A list of available oil spill combat equipment is at **Appendix 16**.

An extract of the guideline on equipment auditing and inventory developed under the FAPS project is at **Appendix 17.**

13.0 Review and Update of the Plan

Contingency Plans are evolving documents, and as such require regular updating. The National Oil Spill Contingency Plan should be reviewed regularly, normally once every five years, to take into account policy changes and experiences from any incidents that may happen and exercises. This has been catered in the Environment Act 2024. Regular amendments should be made to reflect changes in contacts, equipment, and other details.

Part B. Operational Procedures

1.0 IMS Organisational Structure and Elements

The IMS is a systematic tool for the command, control, and coordination of an emergency response. IMS allows agencies to work together to develop a common set of incident objectives, strategies, and operating procedures for controlling personnel, facilities, equipment, and communications at an incident scene. The IMS organisational structure and elements are described in the following paragraphs.

- **Command Staff:** The staff who report directly to the Incident Coordinator, including the Polluters Representative, Safety and Health Professional, and other positions as required.
- **General Staff:** The General Staff represents and is responsible for the functional aspects of the Incident Command structure. The General Staff typically consists of the Operations, Planning, Logistics, and Finance/Administration Sections. In some incidents the General Staff may also include an investigative function, either operating under a staff section or as a standalone section.

Guidelines related to General Staff positions include the following:

Table 16: Guidelines for General Staff Positions

1. Only one person will be designated to lead each General Staff position in the following cells: Planning, Operations, Logistics, and Finance & Admin Section Chiefs.
2. General Staff positions may be filled by qualified persons from any agency or jurisdiction.
3. Members of the General Staff report directly to the Incident Coordinator. If a General Staff position is not activated, the Incident coordinator will have responsibility for that functional activity.
4. Deputy positions may be established for each of the General Staff positions. Deputies are individuals fully qualified to fill the primary position. Deputies can be designated from other jurisdictions or agencies, as appropriate. This is an effective way to bring about greater interagency coordination.
5. General Staff members may exchange information with any person within the organisation, but direction takes place through the chain of command. This is an important concept in ICS.
6. General Staff positions should not be combined. For example, to establish a "Planning and Logistics Section," it is better to initially create the two separate functions, and if necessary for a short time place one person in charge of both. That way, the transfer of responsibility can be made easier.

The organisation of each section will depend on the incident and will change and evolve during the incident and the Section Chiefs' preference hence the following is only an example and guide to how it might be structured, and parts identified.

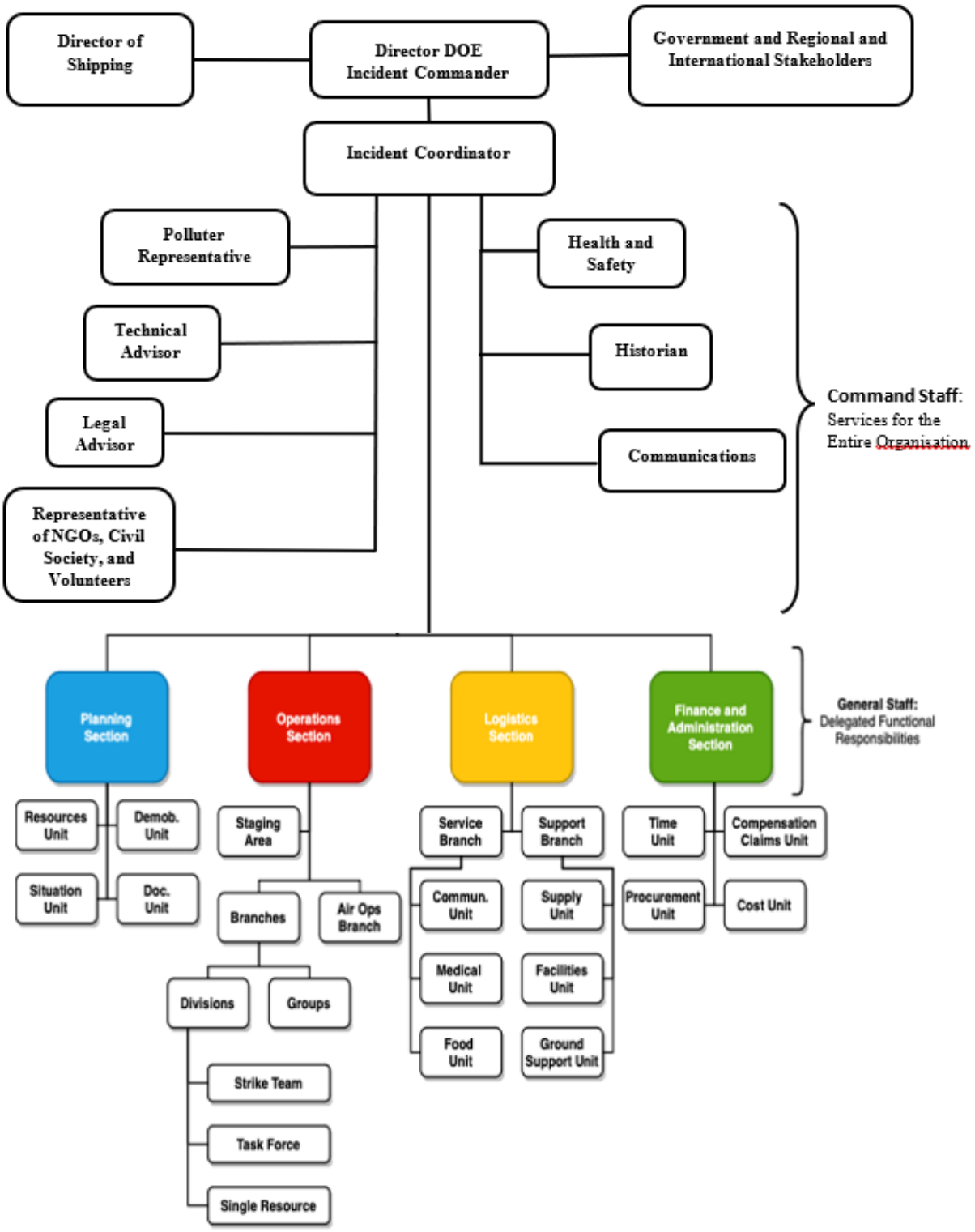


Figure 9: Command and general staff in the ICS

2.0 Command Staff

2.1 Incident Commander

The Director of DOE is the Director of the spill and the Incident Commander (ICM).

Roles & Responsibilities

- Initiate activation of the NOSCP upon notification of ongoing or potential pollution events by appointing the IC;
- Work in coordination with the Director of Shipping of the MOAFSBEF regarding shipping matters;
- Take into consideration the views of the NDRRMC;
- Request international assistance through the MOF if required or advise of a request for assistance from another state;
- To advise other government departments that the NOSCP has been activated. This is not a request for support or personnel, which is done within the NOSCP, but to advise them in case it impacts other government activities or the location and nature of the incident has a specific interest to their current activities and to ensure they are in a place to respond and direct public, media, or other interest to the appropriate contact point;
- To advise the PMO if and when a National Environmental Emergency should be considered and declared;
- To obtain from the IC and pass internal updates to other government departments regarding the progress of incident management as reported;
- To advise the PMO when the National Environmental Emergency declaration is no longer required and or when the NOSCP is reducing its level of activity or demobilising: and
- Activate and notify the other parties of the ROSCP in case regional assistance is required.

2.2 Spill Coordinator / Incident Coordinator

The Spill Coordinator or SPC (also known as the IC in the IMS) function will be performed by the Deputy Director of the DOE or any qualified person as the IC may determine. The SPC will coordinate the work of the various cells of the IMS and report to the ICOM.

2.3 On Scene Coordinator

Depending on the location and nature of the Spill, the On Scene Coordinators will be as follows:

- **Marine Spill:** Commandant of the National Coast Guard;
- **Inland and shoreline spill:** Commanding Officer, Special Mobile Force; and
- **Port Spill:** Port Master (PLHOSRP).

The OSCs will head their respective response team at the spill site. The OSC for oil spill response at sea is the Commandant of NCG while the OSC for shoreline clean-up is the Commanding Officer of SMF. Their activities are listed as follows:

Roles & Responsibilities

- To evaluate the initial situation and assess the magnitude of the problem;
- To activate the response and call out key personnel in the response team, as they deem appropriate to meet the situation;
- To delegate the responsibility of putting the plan into effect to key personnel in the response team;
- To ensure that the assigned responsibilities are carried out and that co-ordination exists between supervisory team members;
- To ensure adequate records are kept;
- To keep the Operations Coordinator informed of progress achieved;
- To ensure appropriate safety and health practices are observed on site;
- To participate in shoreline clean-up operations (SMF);
- To combat spill and participate in clean-up operations at sea (NCG); and
- To carry out aerial surveillance of oil slicks (National Coast Guard and PHS).

The four Section Chiefs working under the OSCs will hold the following functions:

Roles and Responsibilities

- To receive instructions from the OSC on the plan of action;
- Coordinate the overall operation of the containment, recovery, clean-up, storage, and disposal operations;
- To develop the overall plan of action for the containment and clean-up of the specific incident (utilising field observers);
- To assign field supervisors to operations;
- To direct field supervisors to take effective clean-up action and maintenance and repairs;
- To ensure that all clean-up and maintenance operations are carried out safely;
- To ensure that adequate operations and maintenance are properly recorded;
- To establish procedures for security at the central command post, equipment depots, and field operation sites;
- To act as liaison with local police forces for security to prevent loss of equipment, and to control unauthorised access to the spill site;
- To ensure those adequate records concerning security are kept and maintained in a diary;
- To ensure that safe working conditions are provided and safety and health issues are addressed through the help of advisors as necessary: proper practices and conditions, personal protective equipment, hazards inherent in the emergency, and safe use of chemicals.
- To inspect operations, to ensure that conditions and practices meet minimum acceptable standards. In this regard, the ICOM has the authority to stop temporarily any deviant activities that, if continued, could lead to serious consequences;
- To receive and relay the manufacturer's instructions to cope with hazards inherent in the products involved;
- Will advise of the need for, and location of, first aid stations and as required, make contact with such services to indicate possible involvement;
- To conduct meetings as required to co-ordinate the clean-up effort;
- To continuously review the progress and effectiveness of the clean-up operation based on advice;
- To report, investigate, and record all untoward incidents; and
- To carry out such other activities as requested by the OSC.

2.4 Safety and Health Officer

The Safety and Health Officer of the MPS will overlook the safety and health issues for public servants while the Safety and Health Officer of the MOL will look into the legal and regulatory aspects for both public and private staff. The Safety and Health Officers report directly to the IC.

Roles

- Directly advise the SPC on any safety and health issues and associated solutions.
- Oversight and implementation of safety and health requirements, across the IMT and or all field operations, in accordance with the IAP.
- As required ensure sufficient Safety and Health coverage in the IMT sections, and with or supporting field operations either section staff or reporting. Some stakeholders may have integral safety and health personnel, procedures, or practices. The Safety and Health Coordinator must establish oversight of these and determine if they are appropriate and to what extent common procedures and equipment rules are required in the diverse operational areas. (Example: Ships crew and operations will already be governed for the maritime environment but may not be suitable for the particular pollutant which is to be encountered).
- As is seen in other activities, slips, trips, and falls still account for a large proportion of injuries regardless of the pollutant-specific issues. Fatigue, long days in the field, manual labour, and stress can all affect concentration making activities like operating cars, boats, power packs, and excavators more hazardous. Wildlife response can pose particular issues where emotional and enthusiastic volunteers and wildlife do not always result in a good outcome.

Responsibilities

- Identify and obtain a briefing from the SPC and or Operations Section on ongoing and initiated activities.
- Liaison with all sections and attendance at the strategy, tactics, and planning meetings and provide input to the extent possible before the planning meeting not during.
- Establish and maintain a log of activities and decisions for the Unit
- Manage the continuity of the Unit activities across shift changes

2.5 Polluter Representative

The polluter representative reports to the SPC. The person may be from many organisations (owner, charter, cargo owner, correspondent, lawyer, P&I club, or a contracted company) but will

in all cases be the potential route to understand the pollutant, the source, and the actions the polluter has, can and will be able to take to assist the response.

Role

- To represent the polluter and provide timely information, and resources to stem, mitigate and recover any pollution.
- To advise the polluter of the situation, action planned and underway, or areas where they could support the response.
- To advise the SPC and or IMT staff of any objection or question regarding actions planned or being taken immediately and not to withhold such information or reservations.

Responsibilities

- Identify and obtain a briefing from the SPC and Operations Officer and advise them of any other information known to the polluter's representative regarding the incident, pollutant, or actions taken or underway.
- Depending on the skills, experience, and knowledge of the individuals representing the polluter will determine which section they are attached to or if the IMT needs to attach an escort to assist them in the field.
- Ensure any media or public communications are coordinated and advised to the IMT communications team.

2.6 Historian

The Historian reports to the Spill Coordinator and is responsible for recording the key information and events and the times at which these occur. These historic records may be required as part of a review or legal process and are therefore vital to the incident response and functioning of the NOSCP. All activities should be creating and maintaining records, but priority must be on doing so for the most critical and high-level decisions and hence the focus initially should be on recording the information provided to and decisions made by the IC or discussions where he is present.

Role

- Oversight and implementation of a system to log, record, and preserve records of key decisions and actions particularly those taken by the SPC and Section Chiefs of statements, information from the polluters representative.

Responsibilities

- To ensure a record of the activities is maintained (Records can include written, printed, photographs, video and witness statements);
- Ensure all IMT personnel are working to or have logged the difference between their time and the master time clock.

2.7 Technical Advisors

Technical advisors report to the SPC or his appointed liaison point. During an incident, several advisors may be attached to the IMT to ensure knowledge and expertise are used to best effect the advisor's need to be managed and integrated with the wider response. They may be identified in advance or drawn from the IMT, stakeholders, or proposed and provided by the polluter, regional, or international bodies to provide general support, specialist knowledge, or on a limited schedule to support a focussed task (such as local and international NGOs or organisations having expertise in marine and terrestrial wildlife response or restoration, response in mangroves and clean up techniques).

Advisors offer support across three broad areas of activity:

- **Mentoring:** Sharing past successful experiences and lessons to improve the response;
- **Specialist Advice:** On pollutant composition, fate, and safety issues; and
- **Independent Analysis:** Advisors provide input and comment, but they do not have any decision-making or management responsibilities within the Incident Management Team.

Role

- To be agreed upon and determined before the commencement of work in the IMT or the field. This includes any reporting requirements and reports that are generated regarding the incident.

Responsibilities

- Identify and obtain a briefing from the SPC, Planning, and Operations Sections.
- To advise the planning and operations sections.

2.8 Communications Unit

The Communications Officer reports to the Spill Coordinator.

Roles

- Development of a Communications Plan that meets the communications requirements for the effective management and resolution of the incident
- Ensure a Stakeholder Engagement Strategy is developed that includes who to communicate with, how to communicate, who engages, and the method of engagement.
- Dissemination of timely and relevant information, advice, and safety messages to the public
- Ensure that the SPC is involved in the development and approval of media releases.
- Ensure that the SPC is kept up to date regarding media conferences and media releases.
- Liaison with the media about the incident, and management of media requirements, including requirements to safely access field locations
- Conduct media briefings and press conferences in coordination with GIS and NDRRMC.

Responsibilities

- Obtain a briefing from the SPC, Planning Officer.
- Determine, according to direction from the SPC, any limits on information release.
- Establish and maintain a log of activities and decisions for the Communications Unit.
- Communicate Unit performance to the Planning Officer
- Prepare shift handover and brief incoming Communications Planning Unit Coordinator
- Manage the continuity of the Communications Planning Unit activities across shift changes
- Develop accurate, accessible, and timely information for use in press/media briefings.
- Obtain SPC's approval of news releases.
- Conduct periodic media briefings.
- Arrange for tours and other interviews or briefings that may be required.
- Monitor and forward media information that may be useful to incident planning.
- Maintain current information, summaries, and/or displays on the incident.
- Make information about the incident available to incident personnel.

2.9 Legal Advisor

Reports to the Spill Coordinator.

Role

- To provide advice regarding the relevant national or international conventions, laws, and legislation relevant to the incident and related to cost recovery and compensation processes, procedures, and limits as appropriate.
- Provide advice to the SPC / IMT staff related to the legal issues.

Responsibilities

- Obtain a briefing from the SPC.
- Establish your work area appropriate to the size and complexity of the incident (this support may be remote to maintain the confidentiality of the advice being generated or as it is drawn from multiple bodies).
- Establish and maintain a log of activities and legal decisions taken
- Manage the continuity of Liaison activities across shift changes

2.10 P&I Clubs

Approximately 90% of the world's shipping fleet is entered with a Protection and Indemnity insurer, called a P&I Club. The risks covered by the P&I Clubs include:

- Liability arising from the carriage of cargo;
- Pollution liability;
- Liability for loss of life and injury to crew members, passengers, and other such stevedores on a ship;
- Damage to fixed and floating objects and to other property;
- Wreck removal; and
- Other such parts of the liability for collision damage are not covered under a vessel's hull policy.

When an incident occurs a P&I Club usually appoints a correspondent (representative of ITOPF) to assist the P&I Club about claims that arise where the correspondent operates.

The role of the correspondent in marine pollution incidents involving vessels includes, but is not limited to:

- Notifying the P&I Club of incidents that occur in his area of responsibility;
- To attend an incident scene if appropriate;
- To appoint surveyors/experts to attend at the scene of a maritime casualty;
- To liaise with governments, and maritime authorities at the scene of a maritime casualty;
- To monitor salvage operations, pollution containment/removal at the scene of the casualty;
- To assist in posting security for claims; and
- To assist in carrying out investigations on the cause of loss of vessel/cargo.

3.0 General Staff

3.1 Operation Coordinators

3.1.1 On-Scene Coordinators

Depending on the location and nature of the Spill, the designated Scene Coordinators will be as follows:

- **Marine Spill:** Commandant of the National Coast Guard;
- **Inland and shoreline spill:** Commanding Officer, Special Mobile Force; or
- **Port Spill:** Port Master (Port Louis Harbour Oil Spill Response Plan).

3.1.2 Team Leaders working under on-scene coordinators

Unlike an OSC who have authority over all personnel, and resources arriving, and passing through their domain Team Leaders / Beach Masters have authority over only those elements assigned to them in the IAP. They should not assimilate other resources, or personnel or redirect activities not assigned to them in the IAP. The resources assigned may be significant and they may have several supervisors and associated teams operating at a specific location.

3.2 Ministry of Environment, Solid Waste Management and Climate Change

3.2.1 MOE / DOE

Apart from being the Ministry in charge of the activation of the NOSCP, the additional roles and responsibilities of the MOE are listed in the following section:

- Activation of the NOSCP;
- Evaluation of risks together with Shipping and Fisheries Divisions of the MOAFSBEF, NCG, and NDRRMC;
- Assess the type and quantity of pollutants;
- Issue alert to stakeholders with the assistance of NDRRMC;
- Maintain and support the activation and operation of the NOSCP;
- Reporting on the status of response preparedness and progress of response;
- Making recommendations on when NOSCP can be stood down;
- To co-ordinate response together with the SPC;
- To advise the Minister of Environment on environmental emergencies;
- To request international assistance through the appropriate Ministry, if need be;

- To set up an ESEIA Monitoring Plan; and
- Responsible for the general coordination of environmental monitoring in case of actual or suspected marine pollution incidents.

3.2.2 National Environmental Laboratory

As the scientific arm of the Ministry of Environment, Solid Waste Management & Climate Change, the National Environmental Laboratory (NEL) monitors environmental quality to ensure compliance with prescribed environmental standards. The NEL operates mobile air quality monitoring stations (to measure Particulate Matter Total Suspended Particles and gaseous pollutants such as Oxides of Nitrogen, Sulphur Dioxide, and Carbon Monoxide).

The NEL would therefore be responsible for the general coordination of environmental monitoring in case of actual or suspected marine pollution incidents, including oil fingerprinting.

3.2.3 Solid Waste Management Division

The SWM of the MLG deals with:

- Oil spill waste collection, transportation, and disposal;
- To identify temporary storage and permanent disposal sites for waste and recovered materials; and
- Record keeping on the amount of oil waste collected.

3.3 Prime Minister's Office

3.3.1 Prime Minister's Office

PMO will have the following roles and responsibilities:

- To declare an environmental emergency in case of a Tier 2 or 3 spill in line with section 67 (1) of the EA 2024; and
- To facilitate regional and/or international assistance in case of Tier 2 and Tier 3 spills.

3.3.2 Mauritius Police Force

Operated under the aegis of the Home Affairs Division of the Prime Minister's Office and headed by the Commissioner of Police the MPF is the national law enforcement agency for the Republic of Mauritius. It is governed by the Police Act 1974 and is responsible for policing mainland

Mauritius, Rodrigues, and the outer islands. In addition to being the head of the following units, the CP leads the disaster operations at the level of the NEOC.

The NCG holds a stockpile of specialist equipment for maritime pollution response. This includes booms, skimmers, dispersant, and dispersant application equipment. The NCG has a dedicated Pollution Response Unit to maintain proficiency for its role within this contingency plan in the identification, and qualification of marine pollution (from aircraft and ships), familiarization with response strategies, tactics, and practical skills for boom deployment, oil recovery, and offshore and nearshore clean-up as well as exercise in the planning and execution of such activities including integrating and coordinating non-NCG vessels, fishing boats and a variety of vessels used to support shoreline activities.

The roles and responsibilities of the **MPF** are described hereafter:

- Overall responsibilities for managing operations on land and at sea and liaising directly with the Director of the NOSCP;
- To maintain public safety by enforcing law and order;
- To provide liaison personnel to support response activities, equipment, personnel, and waste movements and to control and regulate access in the interest of operation and public safety; and
- To enquire into cases of a criminal and civil nature and advise the IMT on the preservation of evidence, chain of custody for samples and other related evidence, etc.

The roles and responsibilities of the **PHS** which is a unit of the MPF are listed hereafter:

- In case of rogue ship is detected, PHS helicopters may be utilized to effect intervention by MARCOS/GIPM to avoid entry into our territorial waters. The need for practice and combined operations with all stakeholders need to be undertaken regularly;
- PHS would be tasked as per the operational needs during an oil spill in addition to undertaking its primary mission;
- PHS would provide helicopters for aerial surveillance, transportation of people, materials, and equipment;
- PHS would advise and assist the IMT in outsourcing and co-ordination of other helicopter support including other states and/or private sightseeing flight operators like Mauritius Helicopter Ltd and Corail Helicopters.
- PHS would provide trained observers for surveillance, location, identification, and quantification on fixed and rotary wing flights;

- In line with the SIMA which focuses on the maximum recovery of oil and minimization of impact, helicopters of PHS would simultaneously carry extraction of oil from rogue ships by external cargo under-sling operations with the usage of IBCs or ISO Fuel Tanks, to prevent the escalation of oil spill;
- Over and above the usage of fixed-wing aircraft (Dornier Aircraft) to carry out the spraying of dispersant over the spill, helicopters could also be equipped with portable dispersant sprayers as aninnovation. The helicopters need to be modified accordingly and practiced in peacetime;

The roles and responsibilities of the **SMF** which is a paramilitary force unit of the MPF are described as follows:

- To have permanently available a first strike force trained and equipped to deal with an incident;
- To co-ordinate under the NOSCP operations and logistics on the shoreline and nearshore and support where required on water operations;
- To provide OSCs for shoreline operations when required;
- To provide a command-and-control capability if required to support the establishment of a forward base for operations under the NOSCP;
- To carry out shore bases surveillance as required;
- To provide and or coordinate shoreline surveys or drones to carry out surveillance and monitor of pollution or response operations; and
- To provide a cadre of personnel who will act as beach supervisors (beachmasters) for incidents involving multiple shoreline activities or longer-running operations including those involving multiple stakeholder personnel and volunteers and provide liaison and link via SMF communications links to the IMT.

The roles and responsibilities of the **NCG,** the main function of which is to ensure the security and safety of the EEZ of the RM, are listed hereafter:

- To have permanently available a first strike force trained and equipped to deal with an incident;
- To co-ordinate under the NOSCP planning, operations, and logistics for on-water activities and support where required shoreline operations;
- To provide OSCs for maritime operations when required including located on afloat resources;

- To provide a command-and-control capability where required to support the establishment of a base (afloat or at shore points coordination or points of arrival and departure (ports, jetties, boat ramps) for operations under the NOSCP;
- To provide and or coordinate surface vessels, aircraft, or drones to carry out surveillance and monitor of pollution or response operations; and
- To provide a cadre of personnel who will act as afloat or forward marine activity supervisors, for incidents involving multiple marine activities and non-government vessels they may provide liaison and link via NCG communications links to the IMT.

3.3.3 Civil Aviation Department

- Taking safety as a priority to proactively work to provide any required permits and clearances for manned aircraft or drones which might be required;
- To advise on general required documentation, and notifications and enforce any required exclusion zones or no-fly zones requested as part of the incident;
- To assist in the provision of support of any aircraft operations and assist in the provision of working space for flight crews, observers, and passengers as required and temporary storage for equipment arriving from the incident locations, from overseas or received, recovered from the incident locations using aircraft; and
- Issuing permits for oil spill incident aerial surveys using UAVs.

3.3.4 National Disaster Risk Reduction and Management Centre (NDRRMC)

The NDRRMC acts as the mandated institution in Mauritius for coordinating and monitoring all disaster risk reduction and management activities. In the event of a disaster, the National Emergency Operations Command (NEOC) is activated to coordinate and monitor all response and recovery activities. The roles and responsibilities of the NDRRMC are described hereafter:

- Activate the NEOC and be ready to convene the NCC;
- Ensure that communication is established with all major stakeholders involved in the oil spill combat operations;
- Monitor and support the work of the emergency services and supporting agencies;
- Assist emergency services and supporting agencies through NEOC by providing and requisitioning additional resources and services;
- Prepare and issue press releases with the support of the MOE and the Shipping Division of the MOAFSBEF;
- Issue alerts to the stakeholders through its multi-hazard early warning system: and

- Maintain a direct link with the ICOM and ensure that information is shared or received promptly.
- NDRRMC can consider co-opting representatives from the Civil Society, NGO's, academic and research institutions during its committees on disaster risk reduction and management.

3.3.5 Mauritius Meteorological Services

The Mauritius Meteorological Services Act (2019) establishes the Mauritius Meteorological Services (MMS) as the sole official authority responsible for providing climate services" and the "sole institution responsible for issuing warnings" – including for non-meteorological events - for cyclones, torrential rains, tsunamis, high waves, strong winds. It also monitors tide gauges for the risk of storm surges. The MMS will therefore play its role as follows:

- To provide access to all the resources and information the service can provide
- Real-time and comprehensive advice and forecasts for severe weather, including wind, wave heights, air, and sea surface temperature;
- Forecasts for the next week or more detailed daily forecasts for the active incident locations (Source, operational locations) each day;
- Produce localized historical data which could be invaluable in planning response operations particularly salvage and on-water operations; and
- Issue weather warning.

3.4 Ministry of Blue Economy, Marine Resources, Fisheries and Shipping

3.4.1 Ministry of Blue Economy, Marine Resources, Fisheries and Shipping

MOAFSBEF is the apex institution in Mauritius mandated to make the Blue Economy an important pillar to sustain economic diversification and growth, having due regard to the conservation of marine ecosystems. The mission of the ministry is to strengthen governance and harness the marine resources in our Exclusive Economic Zone for fostering sustainable development in contribution to human well-being, food security, and poverty alleviation.

There are several services, divisions, and centers under the purview of the Ministry responsible to manage and develop the Blue Economy, namely:

- Albion Fisheries Research Centre;
- Fisheries Training and Extension Centre;

- Fisheries Protection Service;
- Licensing of Fishing Boats and Fishing Vessels;
- Competent Authority Seafood;
- Monitoring Control Surveillance (MCS)/ Vessel Monitoring System (VMS) /Port State Control and Import/ Export Division; and
- Shipping Division and the Mauritius Maritime Training Academy.

3.4.2 Fisheries Division

The Fisheries Act 2023 provides for the management, conservation, and protection of fisheries and marine resources and ecosystems. It makes provisions related to Marine Protected Areas, fish farming, control of fishing activities, and fish aggregating devices, among others. The role and responsibilities of the Fisheries Division during an oil spill incident includes but is not limited to:

- To assist and advise on the impacts of spills on the marine environment and marine resources;
- To advise on the need for fishing restrictions and bans and the communication and enforcement of the same;
- To advise and assist in the identification and employment of fishermen to support the response, particularly about local knowledge of water movement, currents, supporting survey teams, boom deployment, and provision of people and equipment transport in sheltered waters;
- Identification of marine sensitive areas that shall be given priority for protection during an oil spill;
- Identification of suitable areas to place ecological pins for boom deployment;
- Assist during the anchoring of booms at sea whilst ensuring minimal impact on the Marine ecosystem;
- Conduct an ecological survey to evaluate the impact of oil spills on marine ecosystems including coral reefs, mangroves, and seagrass;
- Carry out short- and long-term monitoring of hydrocarbon contamination and heavy metals in marine sediment, seawater, and fish;
- Carry out monitoring of oil contamination and heavy metals in marine environments and cultured fish at Mariculture farms;
- Issue communique regarding restriction and resumption of fishing activities in areas affected by oil spill;
- Coordinate the compensation of fishers affected by oil spill incident; and
- Attend to fish kill incidents.

3.4.3 Shipping Division

The Shipping Division is responsible for ensuring the safety and security of ships and the protection of life and property at sea as well as the marine environment through the enforcement of the provisions of the National Law including the Merchant Shipping Act 2007 and the international maritime conventions to which the Republic of Mauritius is a party. The roles and responsibilities of the Shipping Division are described hereunder:

- To detain any ship for breach of certain provisions of the Merchant Shipping Act;
- To inspect any ship, or vessel to determine the potential nature and causes of any incident, accidents, unintended acts, and or any damage that the ship has sustained or has inflicted;
- To give instructions as may be required related to salvage operations in line with section 150 of the Merchant Shipping Act of 2007; and
- To act where appropriate as the OSC for source control and salvage operations.

3.4.4 Mauritius Oceanography Institute

The MOI falls under the aegis of the MOAFSBEF. The institute holds some databases which will assist in an incident:

- Provide support for bathymetric surveys:
- Provide pollutant drift simulation data to the IMT (using computer models where available) and provide the interpretation and summary of the results; and
- Provide information based on databases of Marine Organisms of Mauritius containing taxonomic and geographical information on the marine species reported from the Republic of Mauritius; Marine Diversity and Genetic Databank hold morphometric and genetic data of commercial marine organisms found in Mauritian waters; Characterization of aquaculture sites in the Republic of Mauritius; Oceanographic Data Mapping; and Oceanic Carbonate Chemistry Observatory.

3.4.5 The Fisheries Protection Service

- acts as an interface and coordinate between the Ministry and the fisherman community in case of an oil spill.
- Provide a list of registered fishers in the affected area.

3.5 Ministry of Local Government

3.5.1 Ministry of Local Government

The MLG is responsible for the formulation of appropriate policies and strategies and the establishment of the necessary legal framework to ensure that entities under its purview operate smoothly to contribute effectively towards achieving national objectives in respect of:

- Local government matters in Mauritius;
- Cleaning, landscaping, and embellishment of public places;
- Fire prevention and fighting as well as rescue service; and

The Ministry administers the Local Government Act 2011 makes regulations and provides general policy guidance to Local Authorities.

The following organisations/units fall under the purview of the Ministry:

- The Local Authorities;
- The Field Services Unit; and
- The Mauritius Fire and Rescue Service;

The roles and responsibilities of the MLG are described in the following section:

- To provide liaison and logistics support and assist in the collection, clean up, and disposal of waste, access for supporting equipment and personnel; and
- To support the islands in the development of their local contingency plans and ensure their integration with the NOSCP.

3.5.2 Local Authorities

In the context of the activation of the NOSCP, Local Authorities:

- Provide liaison and logistics support and assist in the collection, clean-up, and disposal of waste, and access for supporting equipment and personnel.

3.5.3 Mauritius Fire and Rescue Service

The roles and responsibilities of the MFRS are described hereafter:

- To provide advice on rescue operations
- To provide advice regarding firefighting on board ships, vessels, and containers and or review salvors' plans for the same.

- To advise and assist in the provision of fire precautions, extinguishing capability, and inclusion in plans of any elements related to the prevention of fire or suppression of gases as required.
- Participate in oil spill combat and clean-up operations and
- Co-measure air quality at affected sites with portable multi-gas detector.

3.6 The Ministry of Tourism

The MOT is responsible for the development of a longer-term vision of the tourism sector. Under the current strategy, its objective is to propel the tourism sector as a key engine of growth and to maintain Mauritius as a top-class tourist destination. Furthermore, the ministry's task is to promote an increased awareness of sustainability across the tourism sector.

The Ministry has regular contact and interaction with a significant economic force one which could be affected by pollution directly or from reputational impacts. In addition, the industry manages significant areas of coastline and already employs personnel to maintain and monitor these areas who could provide valuable support during an incident.

The MOT will therefore hold the following roles and responsibilities:

- To act as liaison with the hotel industry to inform them of the impacts of the spill and measures taken to respond to the spill;
- To monitor/gather information on the relocation of tourists at appropriate safe sites by the hotels; and
- Provide timely and accurate information to tour operators amongst others.

3.7 Ministry of Blue Economy, Marine Resources, Fisheries and Shippingh

3.7.1 National Parks and Conservation Service

- Initiate actions as per the provision of the Native Terrestrial Biodiversity and National Parks Act 2015 for the preservation and conservation of terrestrial biodiversity including wildlife and their ecosystems such as wetlands and islets;
- Safe capturing, housing, transport, care, and return of birds and endangered reptile species from the islet ecosystems;

- To assist and advise on the impacts of spill including in estuarine wetlands (Rivulet Terre Rouge Estuary Bird Sanctuary), Ramsar Sites, islets, and migratory birds and other waders nesting, foraging; and
- Identification of sensitive areas that shall be given priority for protection during an oil spill.

3.7.2 Forestry Service

- To provide information on the status of islets under their jurisdiction;
- To provide information on the endemic plants and advise on measures for their protection.

3.8 Ministry of Health and Wellness

- To provide medical advice and assistance during the development and revision of the NOSCP about the protection of people from pollutants, products used in the response, exposure, noise, fatigue, stress, and other aspects of the response strategies;
- To provide medical advice and assistance throughout response and operations;
- To advise on precautionary measures associated with hazards of the pollutant involved;
- To advise and support the provision of medical advice to the public affected and where appropriate gather samples or conduct tests in conjunction with other bodies;
- To undertake a health impact assessment for medical purposes and claims purposes;
- To develop a medical surveillance plan; and
- To keep proper medical records for claims.

3.9 Ministry of Social Integration, Social Security and National Solidarity

- To provide medical surveillance for elderly and special needs inhabitants of coastal areas affected by the oil spill incident using the medical resources of the Ministry.

3.10 Ministry of Labour, Human Resource Development and Training

- Enforce the national 'Occupational Safety and Health Legislation' in the private and public sectors.

3.11 Ministry of Public Service, Administrative and Institutional Reforms

- To advise on safety and health matters for the Public Officers involved in the oil spillage operation.

3.12 Ministry of Finance

- To release funds required to facilitate the response activities;
- To expedite customs clearance for entry of equipment and relief consignments; and
- To develop and implement procedures to document incident costs and support the recovery of costs and compensation for the response, business, and affected individuals.

3.13 Ministry of Foreign Affairs, Regional Integration and International Trade

- To maintain liaison with and plan for external regional or international support as requested by the Director of the NOSCP or SPC.

3.14 Ministry of Housing and Lands

3.14.1 Mauritius Hydrographic Service

The MHS of the Ministry of Housing and Lands takes responsibility for hydrographic surveying and nautical charting in Mauritius. The nodal agency for hydrography was set up in 2013 and can survey coastal areas critical for shipping and surface navigation, carry out underwater search operations for wreck/obstruction detection, and survey extremely shallow lagoons surrounding Mauritius. Its roles and responsibilities are listed as follows:

- *As the national focal point, MHS will coordinate with the NAVAREA VIII coordinator (India) and other national coordinators (including the Shipping Division) so that warnings, information, and advice about the disaster can be made available to mariners; and*
- *In the event of an oil spill caused due to grounding of a vessel, MHS can provide the latest available bathymetric data or conduct hydrographic surveys, as soon as practicable, using local resources, to facilitate salvage operations, if the need arises or Authorities decide so.*

3.15 Ministry of Gender Equality and Family Welfare

To provide on a best effort basis personnel and resources especially, to assist in the distribution of aid, information and support to affected communities and individuals.

3.16 Parastatal Organisations

3.16.1 Mauritius Ports Authority

- To activate the Port Louis contingency plans if need be;
- To support to the extent possible with the identification, mobilisation, and support of vessels, barges, and personnel required under the IAP and provide logistics support, i.e., tugs, pilot boats, berth space, relief crews, refreshments, etc.;
- To provide oil spill combat equipment for spills outside port limits in case of Tier 2 or Tier 3 incidents; and
- To support the landing of recovered materials within the Port.

3.16.2 The Beach Authority

- To assist in clean-up operations;
- To restrict access to public beaches affected during an oil spill incident; and
- To communicate to licensees of the Beach Authority on any decision about the restriction of access on the affected area, if any Management and control of all public beaches in Mauritius.

3.16.3 Tourism Authority

- To act as liaison between pleasure craft operators and the Incident Management Team through the Ministry of Tourism.

3.16.4 Mauritius Revenue Authority (Customs)

The Mauritius Revenue Authority (MRA) is the main agent for revenue collection for the government and includes the Customs Department which is responsible amongst others for control of the import and export of goods and trade facilitation. In case of a TIER 3 incident provision already exists for the clearance of "Relief Consignment" * as follows:

- Relief Consignment is released directly upon arrival of vessel or airplane as the case may be without submission of BOE (Bill of Entry) as per Section 30 of the Customs Act;
- Clearance from the NDRRMC is acceptable where such goods need clearance from any Ministry or agency;
- No duties and taxes are applicable for goods and equipment imported as Relief Consignment;

- Only one document the MRA/CUS/GEN/FORM 17 which can be downloaded from the MRA website https://www.mra.mu needs to be completed and the release of goods is done immediately by the Customs officer on duty;
- The Ministry concerned has 30 days from the date of release of the goods to regularise the importation by submission of the proper BOE, together with all transport documents and invoices. (No duties and taxes applicable); and
- MRA – Customs shall also take necessary measures for the clearance of arriving specialised and technical personnel as well as their equipment both at the port and airport.

**As per Customs Act:*

"Relief consignments" means-

(a) goods, including foodstuffs, medicaments, clothing, blankets, tents, prefabricated houses, water purifying, and water storage items, or other goods of prime necessity, forwarded as an aid to persons affected by the disaster; and

(b) all equipment, vehicles and other means of transport, specially trained animals, provisions, supplies, personal effects, and other goods for disaster relief personnel to enable them to perform their duties and to support their living and working in the territory of the disaster throughout their mission.

3.16.5 National Environment Cleaning Authority

The main objectives of NECA are to develop a National Cleaning and Embellishment Strategy with an Action Plan to embellish Mauritius and keep Mauritius clean, to identify, and prioritise the sites to be kept clean, and to coordinate, monitor and supervise the implementation of cleaning and embellishment programmes.

In this context, the National Environment Cleaning Authority may be involved in oil spill incidents during the clean-up and recovery phases.

3.16.6 State Trading Corporation

- To provide appropriate logistic support;
- To ensure compliance with FUND 92 annual reporting requirements;
- Vetting of vessels for imports of petroleum products; and
- To assist in the liaison between ICM and the ship owner.

3.16.7 Central Electricity Board

- To assist, if required, with equipment, personnel, and logistics; and
- To advise and support provision with the provision of electricity as and where required.

3.16.8 Central Water Authority

- To provide water facilities for the personnel engaged in oil spill response operations and for the cleaning-up of equipment.

3.16.9 Mauritius Telecom

- To provide voice and data communication as well as internet terminals for better communication and data transmission between the various teams.

3.17 Oil Industry and oil transport companies

- To assist with equipment, personnel, and logistics if need be;
- To provide support as waste collectors; and
- To provide for any expertise and advice.

3.18 Non- Governmental Organisations

- To provide a spokesman. Liaison or focal point in the IMT to represent and assist in accessing and utilising the strength of the individual NGOs;
- To provide on a best-effort basis personnel and resources (unlike other stakeholders, NGOs have no legal mandate or responsibility and it would be unfair to expect them to guarantee any response) to assist in the distribution of aid, information, and support to affected communities and individuals;
- To help advisory teams assess damage caused to the environment;
- To participate as impartial observers in the response activities; and
- To provide expertise in restoration of ecosystem and wildlife.

3.19 The Press

Communication of the right and timely information to the public both locally and internationally is of paramount importance in the context of the NOSCP. The press can therefore, with the support of the GIS and the Media Liaison Officer (Part A section 7 of this plan), have access and disseminate information to address the anxiety and quest for updated information from members of the public of affected communities.

3.20 Civil Society and Volunteers

A volunteer coordination plan describing the roles and responsibilities of this actor has been drafted for that purpose. Women and youth will play an important role in the execution of the plan by:

- Setting up local oil spill intervention teams
- Storing oil spill combat equipment
- Providing logistical support to the teams on the ground;
- Participating in oil spill clean-up operations;
- Educating and sensitising the community about oil spill notification and response procedures; and
- Helping through local knowledge.

Fishermen have a thorough knowledge of local oceanography, bathymetry, and climatic characteristics based on their experience at sea. They can provide support by:

- Providing information on the location and extent of sensitive areas within the lagoons or the ocean (traditional fishing grounds);
- Guiding and bringing the teams on the ground;
- Act as observers and provide information on the evolution of the situation and the movement of the oil slick;
- Providing information to support the forecasts on the movement of the slick based on local knowledge;
- Assist in the collection of dead mammals, sea turtles, fish, and other marine organisms;
- Be employed by private clean-up companies to carry out oil spill clean-up operations; and
- Educating and sensitising the community about oil spill notification and response procedures.

Tourism operators can also provide support in terms of:

- Boat facilities and other equipment;
- Act as observers and provide information on the evolution of the situation and the movement of the oil slick;
- Skippers to facilitate the navigation in shallow areas;
- Divers to take samples; and
- Participate actively in oil recovery operations.

A summary of the main features of the Volunteer Coordination Plan developed under the FAPS project is at **Appendix 18.**

3.21 Composition of IMS Cells

The following table summarises the composition of the Planning, Operations, Logistics, and Finance cells of the IMS structure. Those cells are led by a Section Chief with the support of staff from the MOE:

Description	Members
Planning Section The Planning Section is responsible for the collection, evaluation, and display of incident information, maintaining the status of resources, and preparing the Incident Action Plan and incident-related documentation.	**Section Chief:** MOE **Members:** PMO (MMS, DCA), MOE (BA, SWM), MOAFSBEF (Fisheries, Shipping, MOI), MOA (NPCS), MPA, MOH (Hydrographic Unit), MOT (TA), MOHT, MLG (NDRRMC), MFRS, MOL, MOF, MPF (NCG, SMF) **Support Staff:** MOE
Operations Section The Operations Section is responsible for all field-operating activities. In the initial phase of a response, they will handle their logistics and planning to facilitate the response quickly. As the planning cycle is established, the Operations Section is responsible for carrying out the response activities described in the Incident Action Plan.	**Section Chief:** MPF (NCG, SMF) **Members:** PMO, MOE (BA, SWM), MOAFSBEF (Fisheries, MOI), MOA (NPCS), MPA, MOH (Hydrographic Unit), MOT (TA), MOHT, MLG, MFRS, MSS, MOF, NECA, Oil Industry **Support Staff:** MOE

Logistics Section The Logistics Section is responsible for providing all support resources to keep the response operating at peak levels. It provides all support for purchasing, transportation, communications, and security. Logistics establishes and maintains the Incident Command Post, staging areas, and incident facilities such as bases, camps, and housing facilities.	**Section Chief:** NDRRMC **Members:** PMO (PIO), MOAFSBEF (Fisheries), MPA, MOE (SWM), MLG, Local Authorities, MFRS, Oil Companies, MOF, CWA, CEB, MT, MRA, MPF (NCG, SMF) **Support Staff:** MOE
Finance/Administration The Finance/Administration Section monitors all activities concerning time and billing, as well as ensuring that the response operations are audited. It ensures all expenditures and commitments are subject to strict controls to ensure they are properly documented for asset control and invoicing purposes. This section also processes purchase orders and invoices, tracks receipt and distribution of resources, monitors costs, audits contractor attendance and provides the IC with regular, accurate, and up-to-date reports on response expenditures and commitments.	**Section Chief:** MOF **Members:** MOAFSBEF (Shipping), MOF **Support Staff:** MOE

4.0 Pollution Reports and Communications

4.1 Initial Pollution Reports (POLREPS)

Recognising the importance of rapid dissemination of information in the event of a marine spill, any ship's master or crew, aircraft crew, oil company employee, port personnel, or any other person observing a marine spill should immediately report the spill to the DOE.

The Director of Environment in consultation with the OSC should assess the implications of the situation and decide on whether any response is likely to be required. The DIE should also consider whether other parties need to be made aware of a potential pollution situation if operational personnel need to be placed on standby. The OSC should immediately complete a POLREP, using the standard format contained in **Appendix 19**, and urgently transmit this to the DIE, and any other affected / interested parties.

4.2 Situation Reports (SITREPS)

To provide periodic updates on pollution incidents, the OSC should complete SITREPs, using the standard format contained in **Appendix 19**. These SITREPs should be frequently complied with from field information and transmitted to all members of the Incident Management Team and/or any other affected / interested parties at regular intervals throughout the spill.

4.3 Post Incident Reports (POSTREPS)

After a pollution incident, the OSC should prepare a brief report including:

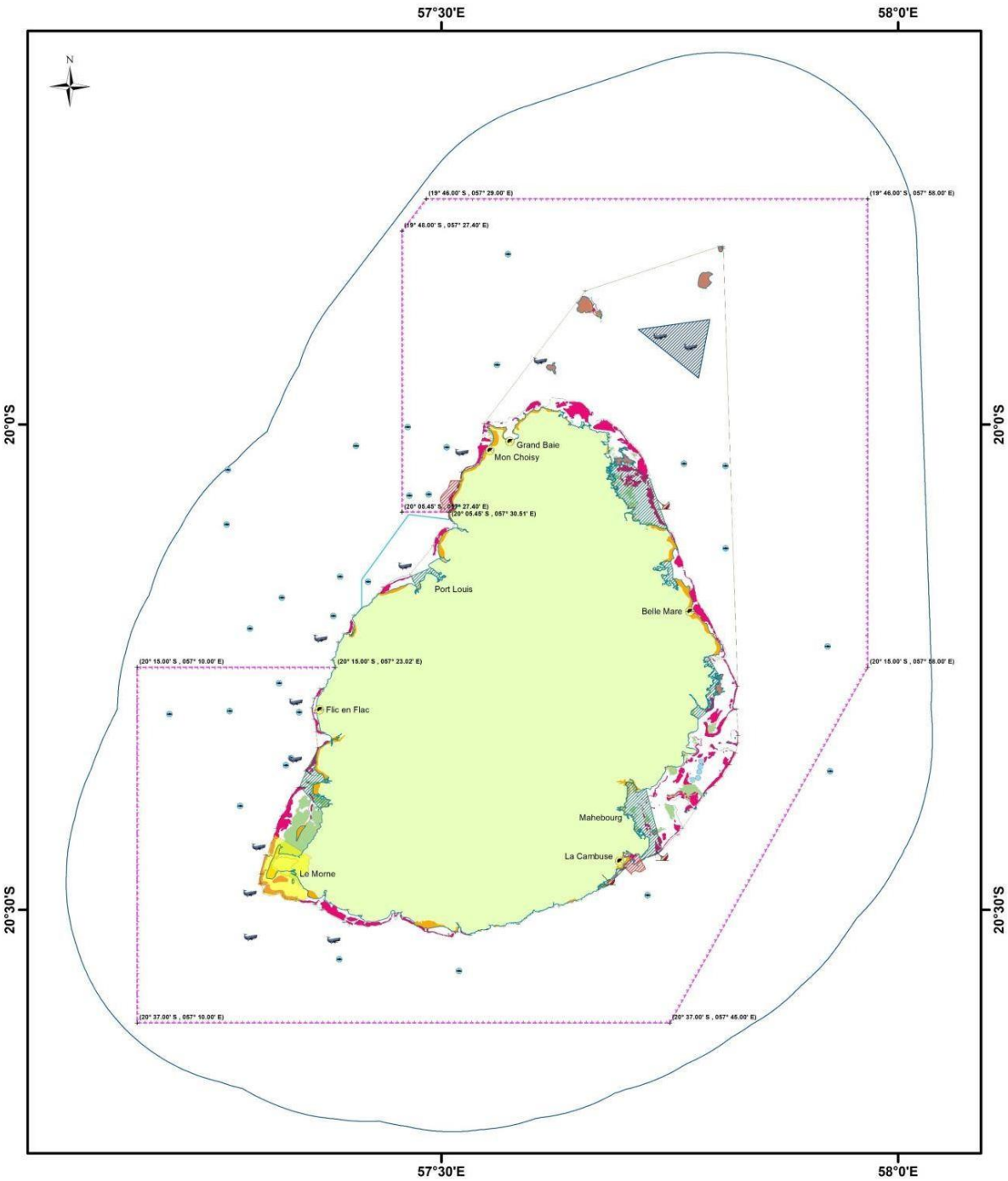
- Assessment of the response operation, including reference to equipment used its effectiveness, additional equipment, and training needs.
- Documentation of clean-up costs.
- Assessment of environmental and economic damage.
- Details of problems encountered.
- Recommendations regarding amendment or revision of the NOSCP.

Part C. Appendices

List of Appendix

- **Appendix 1**: Areas To Be Avoided around Mauritius and Rodrigues
- **Appendix 2:** Summary of Oil Types
- **Appendix 3:** Aerial Observations/Surveillance Guidelines
- **Appendix 4:** Coastal Sensitivity Atlas
- **Appendix 5:** Tactical Sheet Folios
- **Appendix 6:** Emergency Contact List
- **Appendix 7:** Example of Incident Action Plan
- **Appendix 8:** Response Guidelines Structure
- **Appendix 9:** Summary of Oil Spill Response Techniques
- **Appendix 10**: Oil Spill Observation Checklist
- **Appendix 11:** Table of Shoreline Clean-up Guidelines
- **Appendix 12:** Wildlife Rehabilitation Techniques
- **Appendix 13**: Oil Spill Management Plan
- **Appendix 14**: Example of Clean-Up Endpoints for Shoreline Types of the Coastline of Mauritius
- **Appendix 15:** Environmental and Socio-Economic Framework for Claims Procedures
- **Appendix 16:** List of Equipment
- **Appendix 17:** Oil Spill Combat Equipment Auditing and Inventory
- **Appendix 18:** Volunteer Coordination Plan
- **Appendix 19:** Report Forms- POLREPS and SITREPS
- **Appendix 20:** Percentage Cover Chart
- **Appendix 21:** List of National and International Non-Governmental Organisations

Appendix 1: Areas To Be Avoided around Mauritius and Rodrigues



For illustrative purpose only. Geographical coordinates must not be scaled from this map.

September 2020

AREA TO BE AVOIDED

Projection: Mercator
Datum: WGS 84

Nautical miles
0 3 6 12

Produced by: Department for Continental Shelf, Maritime Zones Administration & Exploration, Prime Minister's Office

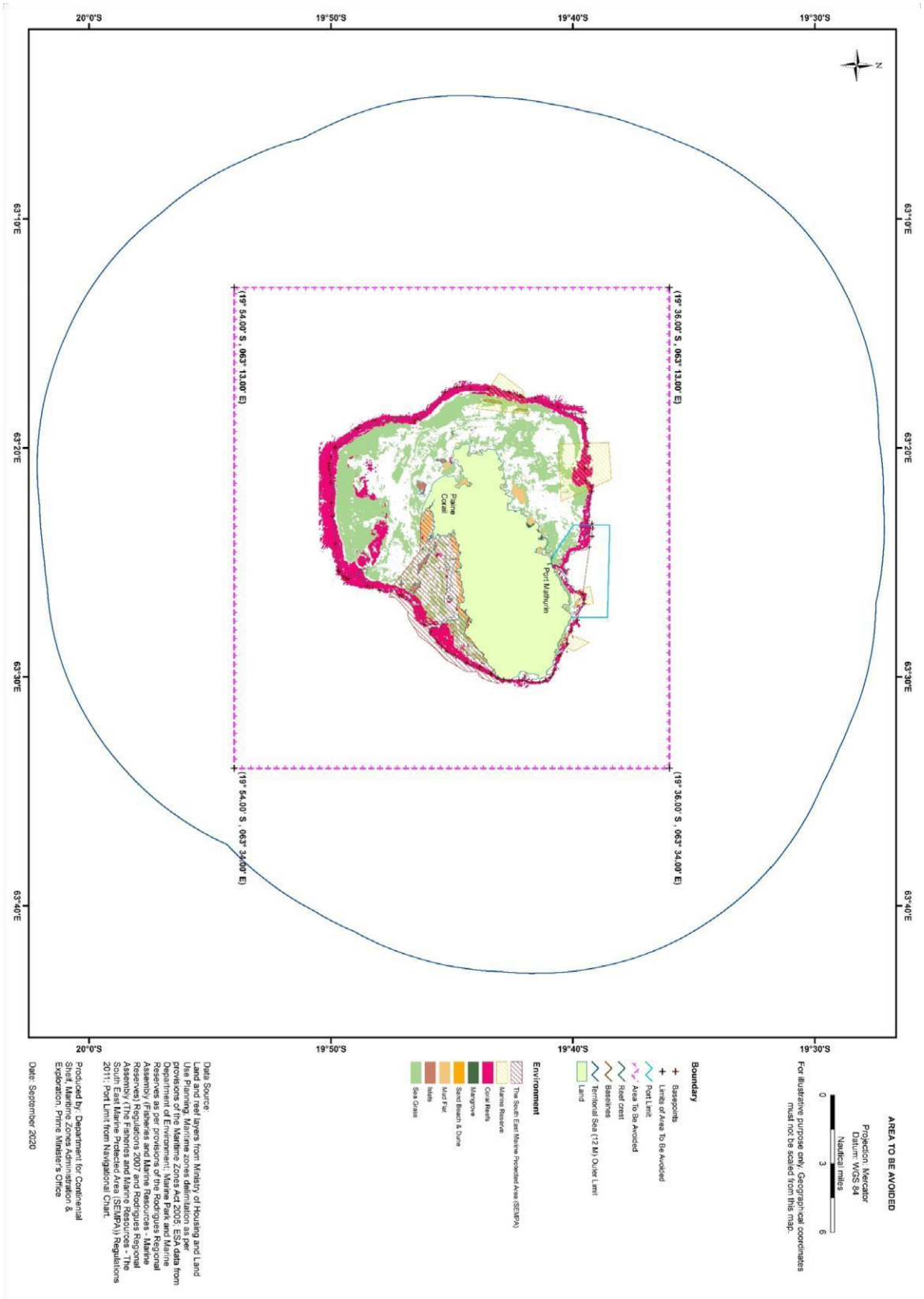
Boundary
- Limits of Area To Be Avoided
- Basepoints
- Area To Be Avoided
- Port Limit
- Baselines
- Reef crest
- Territorial Sea (12 M) Outer Limit
- Land

Environment
- Sand Beach & Dune
- Mud Flat
- Mangrove
- Coral Reefs
- Sea Grass
- Islets
- Fishing Reserve
- Marine Park
- Le Morne WHS

Marine Resources
- Fish Farming Zones
- Recreational Areas
- FADs
- Whale sightings
- Whale nursery sites

Grounding Sites
- Grounding Sites

Data Source:
Land and reef layers from Ministry of Housing and Land Use Planning; Maritime zones delimitation as per provisions of the Maritime Zones Act 2005; ESA data from Department of Environment; Fishing Reserve, Marine Park, Fish Farming Zones as per provisions of the Fisheries and Marine Resources Act 2007; Port Limit from Navigational Chart; FADs from Fisheries Training and Extension Centre; Le Morne WHS as per Le Morne Heritage Trust Fund Act and State of Conservation Report (2015); Whale data from MMCO Megapetra 2020 Maubydick project.


AREA TO BE AVOIDED
Projection: Mercator
Datum: WGS 84
Nautical miles
0
3
6
For illustrative purpose only. Geographical coordinates must not be scaled from this map.
Boundary
Basepoints
Limits of Area To Be Avoided
Port Limit
Area To Be Avoided
Reef crest
Baselines
Territorial Sea (12 M) Outer Limit
Land
Environment
The South East Marine Protected Area (SEMPA)
Marine Reserve
Coral Reefs
Mangrove
Sand Beach & Dune
Mud Flat
Islets
Sea Grass
Data Source:
Land and reef layers from Ministry of Housing and Land Use Planning. Maritime zones delimitation as per provisions of the Maritime Zones Act 2005. EEA data from Department of Environment. Marine Park Layer from Department of Fisheries. Proposed Marine Reserves as per proposals of the Republic of Mauritius Assembly (Fisheries and Marine Resources - Marine Reserves) Regulations 2007 and Rodrigues Regional Assembly (The Fisheries and Marine Resources - The South East Marine Protected Area (SEMPA)) Regulations 2011; Port Limit from Navigational Chart.
Produced by: Department for Continental Shelf, Maritime Zones Administration & Exploration, Prime Minister's Office
Date: September 2020
(19° 36.00' S, 063° 13.00' E)
(19° 54.00' S, 063° 13.00' E)
(19° 54.00' S, 063° 34.00' E)
(19° 36.00' S, 063° 34.00' E)
Passe Corail
Port Mathurin
20°0'S
19°50'S
19°40'S
19°30'S
63°10'E
63°20'E
63°30'E
63°40'E
N

Appendix 2: Summary of Oil Types

There are many different kinds of oil, which differ from each other in their viscosity, volatility, and toxicity. Viscosity refers to an oil's resistance to flow. Volatility refers to how quickly the oil evaporates into the air. Toxicity refers to how toxic, or poisonous, the oil is to either people or other organisms. When spilled, the various types of oil can affect the environment differently. They also differ in how hard they are to clean up. Spill responders group oil into four basic types. A list of the four types, along with a general summary of how each type can affect shorelines are given below:

- **Type 1: Very Light Oils (Jet Fuels, Gasoline)**

- Highly volatile (should evaporate within 1-2 days).
- High concentrations of toxic (soluble) compounds.
- Localized, severe impacts to water column and intertidal resources.
- No clean-up is possible.

- **Type 2: Light Oils (Diesel, No. 2 Fuel Oil, Light Crudes)**

- Moderately volatile; will leave residue (up to one-third of spill amount) after a few days.
- Moderate concentrations of toxic (soluble) compounds.
- Will "oil" intertidal resources with long-term contamination potential?
- Clean-up can be very effective.

- **Type 3: Medium Oils (Most Crude Oils)**

- About one-third will evaporate within 24 hours.
- Oil contamination of intertidal areas can be severe and long-term.
- Oil impacts on waterfowl and fur-bearing mammals can be severe.
- Clean-up is most effective if conducted quickly.

- **Type 4: Heavy Oils (Heavy Crude Oils, No. 6 Fuel Oil, Bunker C)**

- Heavy oils with little or no evaporation or dissolution.
- Heavy contamination of intertidal areas is likely.
- Severe impacts to waterfowl and fur-bearing mammals (coating and ingestion).
- Long-term contamination of sediments is possible.
- Weathers very slowly.
- Shoreline clean-up is difficult under all conditions.

Appendix 3: Aerial Observations / Surveillance Guidelines

Aerial reconnaissance is essential for an effective response to oil spills, both to facilitate the location of oil at sea and to improve the control of response operations. However, finding the oil and then interpreting its appearance in terms of amount and type is often difficult. The resemblance between floating oil and other phenomena is frequently deceptive. The aircraft chosen for aerial observation must feature good all-around visibility and carry suitable navigation aids. Over nearshore waters, the flexibility of helicopters may be an advantage. For extensive surveys over remote sea areas, the extra margin of safety afforded by a twin or multi-engine aircraft is essential.

A flight plan should be prepared in advance using a chart of appropriate scale and taking account of any available information which may reduce the search area as much as possible. The search altitude is generally determined by the prevailing visibility. In clear weather, 500 metres (1500 feet) frequently proves to be optimum for maximising the scanning area without losing visual resolution. However, it will be necessary to drop to half this height or lower to confirm any sightings of floating oil or to analyse its appearance.

APPEARANCE OF OIL AT SEA

It is important to understand that it is quite challenging to distinguish oil at sea. It may look like any of these:

- Cloud shadow
- Ripples on surface
- Seaweeds in shallow waters
- The colour difference between two water mass
- River sediments & deltaic regions
- Sewage discharge
- Fish spawning

However, identifications can be made by low flights from fixed or rotary aircraft and the colour of the slick may change with time and depending on the thickness.

VISUAL QUANTIFICATION OF OIL

An accurate assessment of the thickness based on the appearance is not possible. Hence, approximate calculations may be used. The thickness of heavy oils is difficult to estimate as oils

below the pour points will solidify in irregular shapes. The table below shows how a visual quantification of oil may be estimated.

OIL TYPE	APPEARANCE	PPROXIMATE THICKNESS	APPROXIMATE VOLUME(M^3/KM^2)
OIL SHEEN	SILVERY	0.0001	0.1
OIL SHEEN	IRIDESCENT	0.0003	0.3
CRUDE AND FUEL OIL	BLACK/DARK BROWN	0.1	100
WATER IN OIL	BROWN/ORANGE	LESS THAN 1MM	LESS THAN 1000

The procedure for visual observation is to estimate the length and width of the slick by making time and speed calculations. This forms an imaginary rectangle that encloses the slick. There may be high levels of error in area estimation. Therefore, the proportion of the overall area that is covered by oil of any thickness needs to be estimated. Hence, 90% of the oil will be contained within 10% of the overall slick.

An example of an aerial surveillance observing log is below:

AERIAL SURVEILLANCE OBSERVER LOG

Incident		Date		Observers	
Aircraft Type		Call Sign		Area Of Survey	
Survey Start Time		Survey End Time		Average Altitude	
Wind Speed (knots)		Wind Direction		Notes	
Cloud Base (feet)		Visibility (nm)			
Time High Water		Time Low Water			
Current Speed (nm)		Current Direction			

SLICK DETAILS

SLICK	TIME UTG	OIL POSITION (CENTRE)		SLICK ORIENT Degrees	OIL SLICK LENGTH			OIL SLICK WIDTH			AREA km²	AREA COVERAGE %	OILED AREA km²
		LATITUDE NORTH	LATITUDE EAST/WEST		G/SPEED	TIME Seconds	DISTANCE km	G/SPEED	TIME Seconds	DISTANCE km			
A													
B													
C													
D													
E													

SLICK	OIL APPEARANCE COVERAGE %						MINIMUM VOLUME M	MAXIMUM VOLUME M	TYPE OF DETECTION (visual, IR, etc)
	1	2	3	4	5	OTH			
A									
B									
C									
D									
E									

THE BONN AGREEMENT OIL APPEARANCE CODE (BAOAC)			
No	OIL APPEARANCE	MIN. VOLUME m3 / km²	MAX. VOLUME m3 / km²
1	SHEEN	0.04	0.30
2	RAINBOW	0.30	5.00
3	METALLIC	5.00	50.0
4	DISCONTINOUS TRUE COLOUR	50.0	200
5	TRUE COLOUR	200	>200

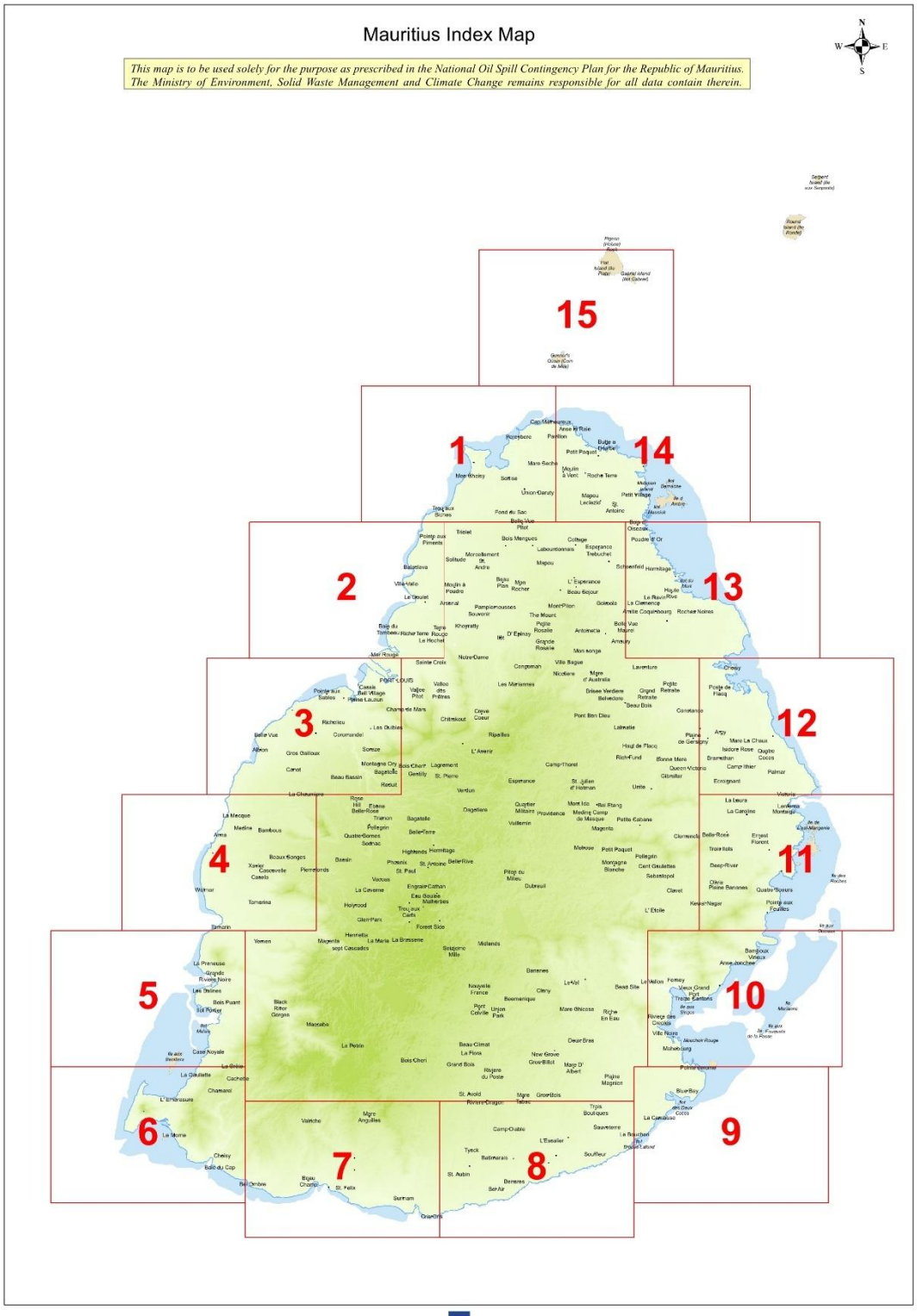
NOTE: Ground Speed (G/SPEED) is the speed of the aircraft (helicopter) relative to the ground (sea) measured in knots (kt). One knot is one nautical mile (nm) per hour.

1 kt = 1 nm per hour = 1.85 kilometres (km) per hour

EXAMPLE: A helicopter flying at 50 knots, takes 130 seconds to fly along the length of an oil slick. What is the length of the oil slick in km? Using the equation: Speed x Time = Distance

Speed (kmph) = 50 knots x 1.85 = 92.5 kmph Time (hr) = 130/3600 = 0.036 hr

Appendix 4: Coastal Sensitivity Atlas



Appendix 5: Tactical Sheet Folio

An example of a Tactical Sheet Folio for the Port Area

Appendix 6 : Emergency Contact List

Organisation	Phone number
Police Information & Operation Room	148
Ministry of Environment, SWM and Climate Change (Police de L'Environnement)	203 6200 (0900 to 1600 hr) 210 5151 210 5252
National Coast Guard Operations Room	177 208 8317 208 3935
Mauritius Ports Authority	206 5400
National Disaster Risk Reduction & Management Centre (NDRRMC)	207 3900
Mauritius Fire and Rescue Services	115
Ministry of Health and Wellness (SAMU)	114

In case of an oil spill, the owner of the spill should notify the Police Information and Operation Room, the Director of Environment and the Officer in Charge of the NDRRMC within one (1) hour as per section 61(2) (a) of the Environment Act 2024. The above list provides contact details of stakeholders to be contacted in case of an oil spill emergency.

The contact list of all stakeholders and emergency services would be reviewed biennially. In this document only an emergency contact list is available. The full list of contact details is available at the level of key governmental stakeholders. Same may be viewed upon request of the Supervising Officer of the Ministry of Environment, Solid Waste Management and Climate Change.

Appendix 7: Example of Incident Action Plan

Incident Objectives

1. Incident Name:	**2. Operational Period:** Date From: Date To: Time From: Time To:
3. Objective(s):	
4. Operational Period Command Emphasis:	
General Situational Awareness:	
5. Site Safety Plan Required? Yes ☐ No ☐ **Approved Site Safety Plan(s) Located at:**	
6. Incident Action Plan (the items checked below are included in this Incident Action Plan)**:** ☐ Map/Chart ☐ Weather Forecast/Tides/Currents	Other Attachments: ☐ _____
7. Prepared by: Name: _____ Position/Title: _____ Signature: _____	
8. Approved by Incident Commander: Name: _____ Signature: _____	
IAP Page _____	Date/Time: _____

Notes Incident Objectives

The Incident Objectives describe the basic incident strategy, incident objectives, command emphasis/priorities, and safety considerations to be used during the next operational period and should be prepared by the Planning Section following each Command and General Staff meeting conducted to prepare the Incident Action Plan.

Part	Title	Instructions
1	**Incident Name**	Enter the name assigned to the incident. If needed, an incident number can be added.
2	**Operational Period** • Date and Time From • Date and Time To	Enter the start date (month/day/year) time (using the 24-hour clock) and end date and time for the operational period to which the form applies.
3	**Objective(s)**	Enter clear, concise statements of the objectives for managing the response. Ideally, these objectives will be listed in priority order. These objectives are for the incident response for this operational period as well as for the duration of the incident. Include alternative and/or specific tactical objectives as applicable. Objectives should follow the SMART model or a similar approach: **S**pecific – Is the wording precise and unambiguous? **M**easurable – How will achievements be measured? **A**ction-oriented – Is an action verb used to describe expected accomplishments? **R**ealistic – Is the outcome achievable with given available resources? **T**ime-sensitive – What is the timeframe?

Part	Title	Instructions
4	**Operational Period Command Emphasis**	Enter command emphasis for the operational period, which may include tactical priorities or a general weather forecast for the operational period. It may be a sequence of events or an order of events to address. This is not a narrative on the objectives, but a discussion about where to place emphasis if there are need to prioritised based on the Incident Coordinator's direction. Examples: Be aware of falling debris, secondary explosions, etc.
	General Situational Awareness	General situational awareness may include a weather forecast, incident conditions, and/or a general safety message. If a safety message is included here, it should be reviewed by the Safety Officer to ensure it is in alignment with any Safety Message/Plan.
5	**Site Safety Plan Required?** Yes ☐ No ☐	The Safety Officer should confirm that safety issues have been considered and include appropriate PPE, Measures and supervision in the planned activities.
6	**Incident Action Plan** (the items checked below are included in this Incident Action Plan): ☐ Map/Chart ☐ Weather Forecast/ Tides/Currents Other Attachments:	Check appropriate forms and list other relevant documents that are included in the IAP. ☐ Assignment List ☐ Incident Communications Plan ☐ Medical Plan ☐ Safety Message/Plan
7	**Prepared by** • Name • Position/Title • Signature	Enter the name, ICS position, and signature of the person preparing the form. Enter date (month/day/year) and time prepared (24-hour clock).
8	**Approved by Incident Commander** • Name • Signature • Date/Time	The IC to approve once happy with the plan

Examples Incident Objectives

Ensure the Safety of Citizens and Response Personnel

- Identify hazards of spilled material (MSDS)
- Establish site control: hot zone, warm zone, cold zone and security
- Consider evacuations as needed
- Establish vessel and/or aircraft restrictions
- Monitor air in the impacted area
- Develop a site safety plan for response personnel
- Ensure safety briefings are conducted

Control the Source of the Pollution

- Complete emergency shutdown procedures (stop the flow)
- Conduct firefighting efforts or be prepared for the possibility of a fire
- Initiate temporary repairs
- Transfer or lighter the product
- Begin recovery operations

Establish Monitoring and Predict Track of the Pollution

- Conduct overflights
- Send out observers
- Track oil movement and develop spill trajectories

Contain the Spilled Material

- Deploy oil containment boom around the source
- Conduct on-water collection and recovery
- Deploy collection and recovery systems at locations along the shoreline
- Deploy oil containment boom at appropriate collection areas
- Use sorbent material where appropriate

Protect the Sensitive Environment, Recreational, Economic, and Cultural Areas

- Deploy exclusion and deflection booming
- Identify natural resources at risk in the spill vicinity
- Develop environmentally appropriate clean-up tactics

Consider Alternate Technologies

- Dispersant application
- In-Situ Burning

Clean Up (remove) the Oil from the Impacted Area

- Conduct environmentally appropriate shoreline clean-up efforts
- Clean oiled structures: piers, docks, bridges, etc.
- Clean oiled boats and vessels
- Dispose of the Waste Properly (Develop a Disposal Plan)

Recover and Rehabilitate Injured Wildlife

- Establish an oiled wildlife reporting hotline, if necessary
- Conduct injured wildlife search and recovery operations
- Set up a stabilization unit for injured wildlife
- Operate a wildlife rehabilitation centre if oiled wildlife is found

Keep the Public Informed of the Response Activities

Assignments Lists

1. Incident Name:	**2. Operational Period:** Date From: Date To: Time From: Time To:	**3.** **Branch: 1** **Division: 1** **Group: 11**

4. Operations Personnel: Name

Contact Number(s)

Operations Section Chief: _____

Branch Director: _____

Division/Group Supervisor: _____

5. Resources Assigned:				
Resource Identifier	Leader	# of Persons	Contact (e.g., phone, pager, radio frequency, etc.)	Reporting Location, Special Equipment and Supplies, Remarks, Notes, Information

6. Work Assignments:

7. Special Instructions:

8. Communications (radio and/or phone contact numbers needed for this assignment)**:**

Name/Function	Primary Contact: indicate cell, pager, or radio (frequency/system/channel)
/	
/	
/	

9. Prepared by: Name: _____ Position/Title: _____ Signature: _____

IAP Page _____ Date/Time: _____

Notes Assignment Lists

Purpose. The Assignment List(s) informs supervisors of incident assignments. Once the Command and General Staff agree to the assignments, the assignment information is given to the appropriate field staff.

Preparation. Is prepared using guidance from the Incident Objectives and the Operations Section. It must be approved by the Incident Coordinator but may be reviewed and noted as such by the Planning Section Chief and Operations Section Chief before this as well.

Distribution. In some cases, assignments may be communicated via email/radio/telephone/fax. All completed original forms must be retained as part of the incident history.

Notes:

The assignment details are part of the IAP.

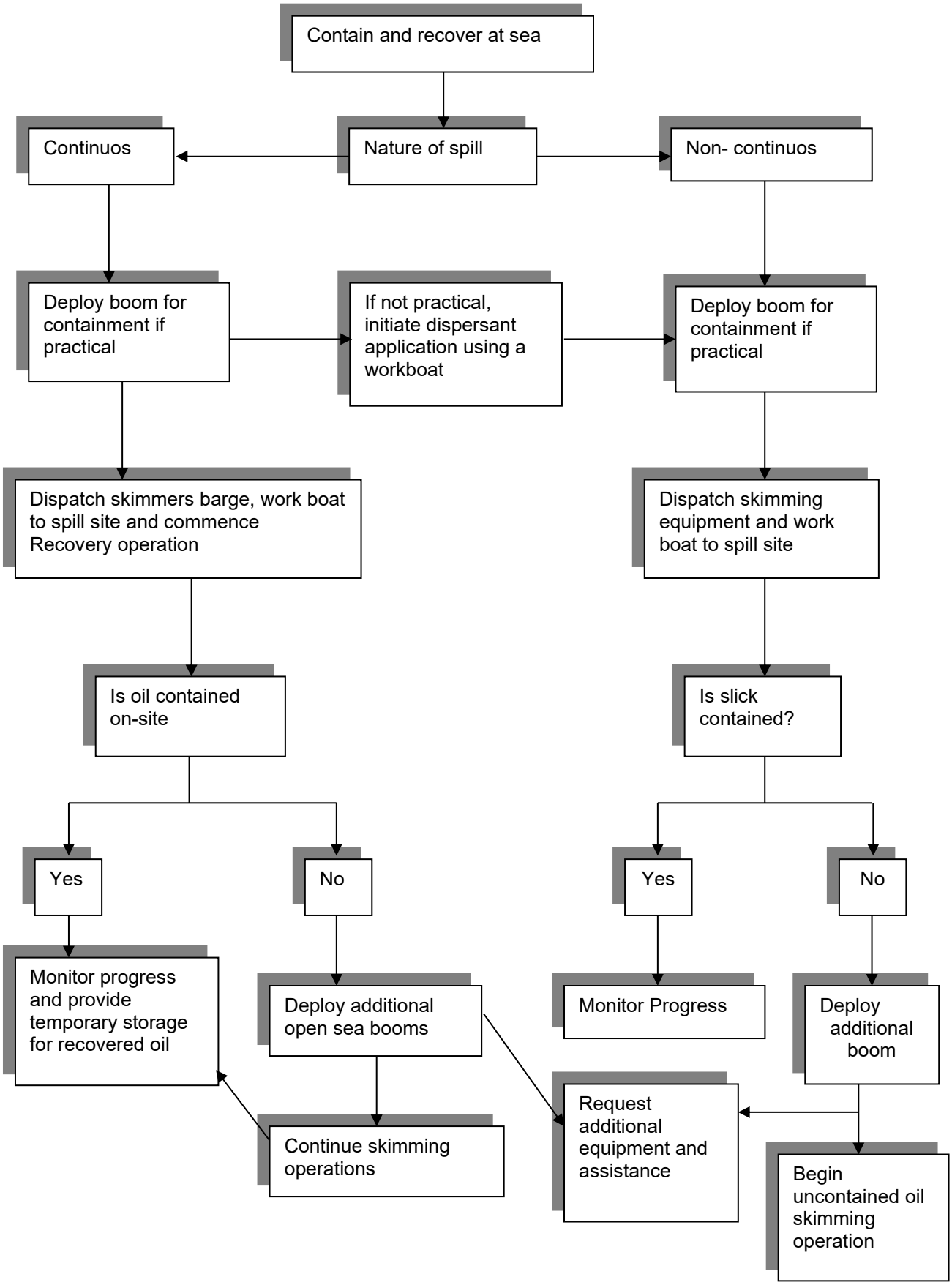
Multiple pages/copies can be used if needed.

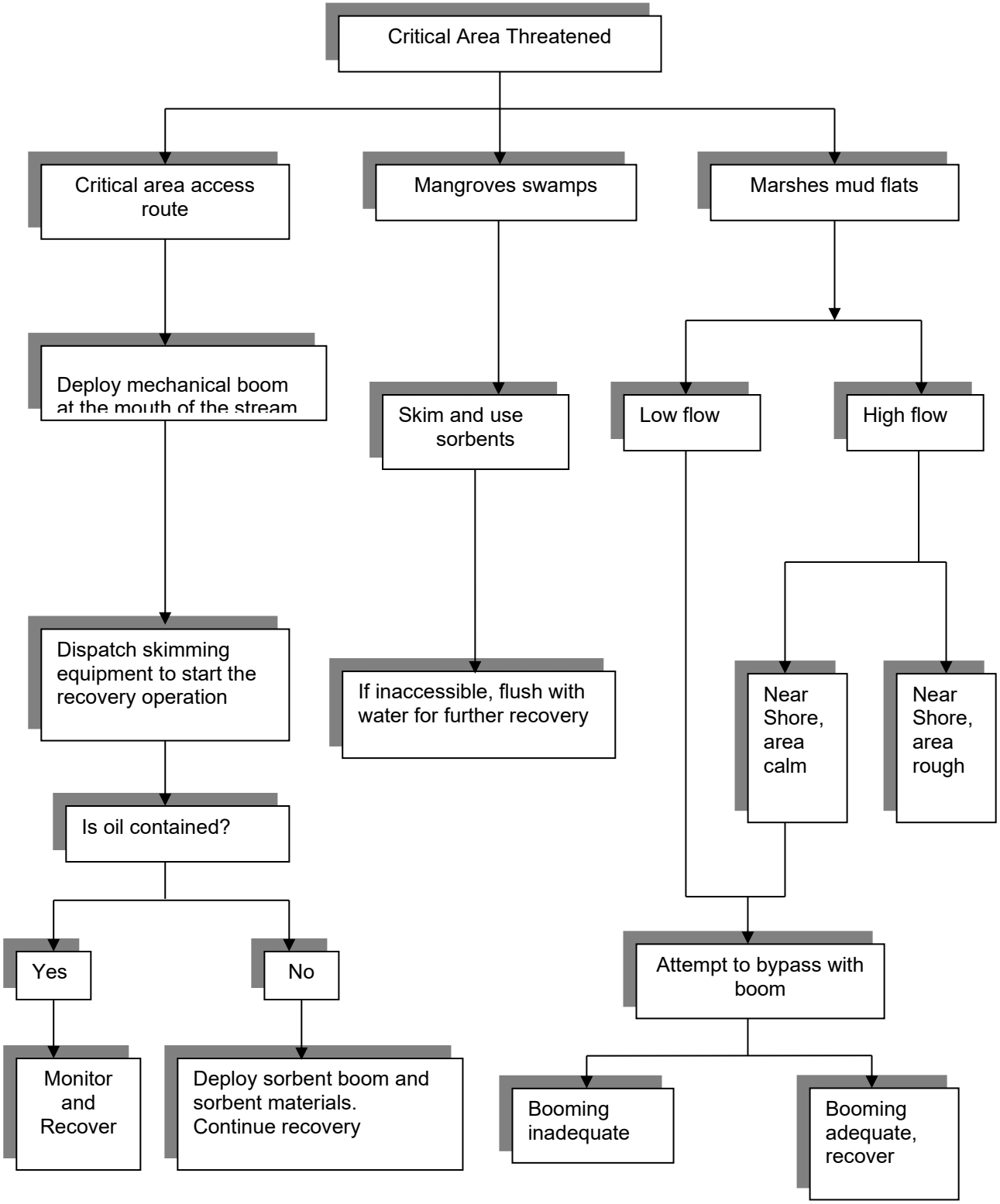
Part	Title	Instructions
1	**Incident Name**	Enter the name assigned to the incident.
2	**Operational Period** Date and Time From Date and Time To	Enter the start date (month/day/year) and time (using the 24-hour clock) and end date and time for the operational period to which the form applies.
3	**Branch** **Division** **Group**	This block is for use in a large IAP for reference only. Write the alphanumeric abbreviation for the Branch, Division, and Group (e.g., "Branch 1," "Division D," "Group 1A") in large letters for easy referencing.
4	**Operations Personnel** Name, Contact Number(s) – Operations Section Chief – Branch Director – Division/Group Supervisor	Enter the name and contact numbers of the Operations Section Chief, applicable Branch Director(s), and Division/Group Supervisor(s).

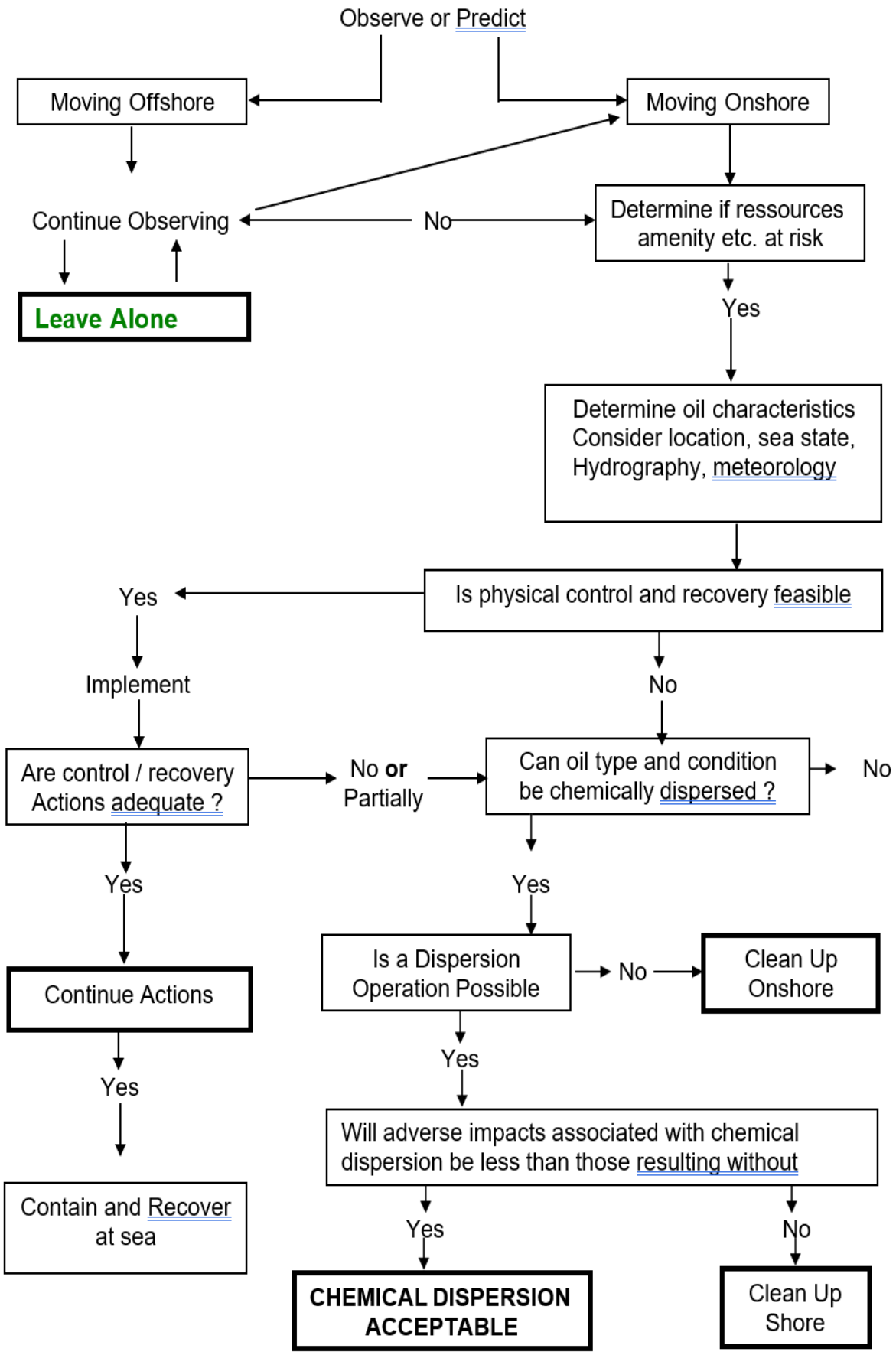
Part	Title	Instructions
5	**Resources Assigned**	Enter the following information about the resources assigned to the Division or Group for this period:
	Resource Identifier	The identifier is a unique way to identify a resource. If the resource has been ordered but not confirmed use TBD (To Be Determined).
	Leader	Enter resource leader's name.
	# of Persons	Enter the total number of persons for the resource assigned, including the leader.
	Contact (e.g., phone, pager, radio frequency, etc.)	Enter primary means of contacting the leader or contact person (e.g., radio, phone, pager, etc.). Be sure to include the area code when listing a phone number.
5 (continued)	Reporting Location, Special Equipment and Supplies, Remarks, Notes, Information	Provide special notes or directions specific to this resource. If required, add notes to indicate: (1) specific location/time where the resource should report or be dropped off/picked up; (2) special equipment and supplies that will be used or needed; (3) whether or not the resource received briefings; (4) transportation needs; or (5) other information.
6	**Work Assignments**	Provide a statement of the tactical objectives to be achieved within the operational period by personnel assigned to this Division or Group.
7	**Special Instructions**	Enter a statement noting any safety problems, specific precautions to be exercised, drop-off or pickup points, or other important information.
8	**Communications** (radio and/or phone contact numbers needed for this assignment) Name/Function Primary Contact: indicate cell, pager, or radio (frequency/system/channel)	Enter specific communications information (including emergency numbers) for this Branch/Division/Group. Phone and pager numbers should include the area code and any satellite phone specifics. In light of potential IAP distribution, use sensitivity when including cell phone numbers. Add a secondary contact (phone number or radio) if needed. If radios are being used, enter function (command, tactical, support, etc.), frequency, system, and channel

Part	Title	Instructions
9	**Prepared by** Name Position/Title Signature Date/Time	Enter the name, ICS position, and signature of the person preparing the form. Enter date (month/day/year) and time prepared (24-hour clock).

Appendix 8: Response Guidelines Structure




Critical Area Threatened
Critical area access route
Mangroves swamps
Marshes mud flats
Deploy mechanical boom at the mouth of the stream
Skim and use sorbents
Low flow
High flow
Dispatch skimming equipment to start the recovery operation
If inaccessible, flush with water for further recovery
Near Shore, area calm
Near Shore, area rough
Is oil contained?
Yes
No
Attempt to bypass with boom
Monitor and Recover
Deploy sorbent boom and sorbent materials. Continue recovery
Booming inadequate
Booming adequate, recover


Observe or Predict
Moving Offshore
Moving Onshore
Continue Observing
No
Determine if ressources amenity etc. at risk
Leave Alone
Yes
Determine oil characteristics Consider location, sea state, Hydrography, meteorology
Is physical control and recovery feasible
Yes
Implement
No
Are control / recovery Actions adequate ?
No or Partially
Can oil type and condition be chemically dispersed ?
No
Yes
Yes
Continue Actions
Is a Dispersion Operation Possible
No
Clean Up Onshore
Yes
Yes
Will adverse impacts associated with chemical dispersion be less than those resulting without
Contain and Recover at sea
Yes
No
CHEMICAL DISPERSION ACCEPTABLE
Clean Up Shore

Appendix 9: Summary of Oil Spill Response Techniques

The available oil spill response techniques and their corresponding timeline are listed in the following table:

Strategy Number	Response Strategy	Timeline			
		Hours	Days	Weeks	Months
Strategy 1	Monitoring and Evaluation				
Strategy 2	Sampling				
Strategy 3	Source Control and/or Salvage				
Strategy 4	Containment and Recovery				
Strategy 5	Use of Dispersants				
Strategy 6	Burning				
Strategy 7	Sinking				
Strategy 8	Pre-Cleaning and Preparation				
Strategy 9	Deflection and Protective Booming				
Strategy 10	Containment Booming				
Strategy 11	Shoreline Clean-up				
Strategy 12	Wildlife Response				
Strategy 13	Waste Disposal				

Appendix 10: Oil Spill Observation Checklist

Consider how you will record your observations. If more than one person is present, consider distributing the work and separate persons making notes, annotating charts taking photographs. Consider technology that can reduce the notetaking burden, such as voice recording, Photograph the position altitude and direction indicators, GPS tracking, or linked to photographs.

If using an aircraft, consider the space limitations, access to your equipment, and communications with the pilot (not all passengers may have headsets so agree with your plan and signals).

If using drones consider how the information captured will be viewed during the flight, saved, transmitted, and reviewed potentially by a wider group immediately or post-flight. Drones are a lower-cost method of surveillance but require skilled and trained operators to be effective.

Visual information provides an insight that words cannot replace, but must not be allowed to dominate or take time in IC meetings.

Ensure the IMT is aware of your plan and when they can expect a report. It is not always possible or efficient to report in person so be ready to make radio or phone reports. It will help if they have the same charts or maps you are using.

It is often difficult to identify pollution and quantify pollution and many natural phenomena may appear to be pollution but are not. It is therefore important to try and quantify and clarify what is observed.

The checklist below is intended to help you record and clarify your observations. Not all the questions will be appropriate to all scenarios but try to answer them all.

If receiving a report, run through this question with the person reporting.

Reporting:

1. **General Information**
    - Who is making the report?
    - Contact Number / Address
    - Important to get in case the link is lost, and you need to call back or get clarification)

- What have they seen (in their own words)?
- Is this a location they visit, and pass regularly?

Date

Time

Stage of tide (flood, ebb, slack, in, out)

Incident name

Platform (helicopter, fixed-wing aircraft, boat, beach, cliff)

Observers' names

Flight Path/ Trackline

Observers' affiliations

The altitude where observations taken

Location of pollution source (if known)

Areas not observed (e.g., foggy locations, restricted air spaces, shallow water areas)

Note: When following a flight path or track line, travel beyond known impacted areas to check for pollution beyond these areas and to minimize the number of observations made while facing into the sun.

Note: Include the name and phone number of the person making the observations.

2. Observations

- Pollution / Slick location(s)
- Pollution / Slick dimension(s) area covered
- Orientation of pollution/slick (s)
- Distribution of pollution/oil (e.g., as windrows, streamers, pancakes, or patches)
- Colour and or appearance (e.g., rainbow, dull or silver sheen, black, or brown, or mousse)
- Percent coverage (see Percentage Coverage Chart hereafter)
- Is oil recoverable (Y/N)? (examples of recoverable oil types include black oil,mousse, and heavy dull- or dark-coloured sheens)

Note: Clearly describe the locations where pollution is observed, as well as the areas where no pollution has been seen.

3. **Response Operations**
    - Skimmer deployment (general locations where skimmers are working. Are theyworking in the heaviest concentrations of oil?)
    - Boom deployment (general locations of the boom(s). Does the boom contain oil? Is oil entraining under the boom?)
    - Source of Pollution (describe the status of the source. Is pollution still being released?)

4. **Environmental Observations**
    - Locations of convergence lines, rip tides, and sediment plumes
    - Locations of kelp beds, seagrass beds, and other features that could be mistaken for oil.
    - Wildlife present in the area (locations and approximate numbers of birds and marine mammals)
    - Non-Incident activity
    - All observations of large marine mammals, birds, fishing, leisure craft, and or activity on shoreline.

5. **Factors Affecting Visual Observations**
    - Oil surface slicks and plumes look different for many reasons; for example, oil or product characteristics, time of day (different sun angles), weather, sea state, and the rate at which oil disperses.
    - Low-contrast light conditions (i.e., overcast, twilight, haze, etc.) make observations difficult.
    - For best viewing, the sun should be behind you, with the aircraft at an altitude of about 500 to 1,000 feet observing the slick at a 30-degree angle.
    - Appearances of dispersant action can range from brown to no visible plume. The visibility of the dispersed plume will vary according to water clarity. In some cases, remaining surface oil and sheen may mask oil dispersing under the slick and thus interfere with observations of the dispersed oil plume.
    - Sometimes other things, such as suspended solids or algal blooms, may resemble dispersed oil.

6. **Oil Colour Appearance Terms**

Light Sheen: A light, almost transparent layer of oil. Sometimes confused with windrows and natural sheen resulting from biological processes. Sometimes referred to as transparent sheen.

Rainbow Sheen: Sheen that reflects colours. Silver Sheen: A slightly thicker layer of oil that appears silvery or shimmers. Occasionally called grey sheen.

Sheen: Sheen is a very thin layer of oil (less than 0.0002 inches or 0.005 mm) floating on the water surface and is the most common form of oil seen in the later stages of a spill. According to their thickness, sheens vary in colour from rainbows, for the thicker layers, to silver/grey for thinner layers, to almost transparent for the thinnest layers.

Sheen: Sheen is a very thin layer of oil (0.0003 mm or less) floating on the water surface and is the most common form of oil seen in the later stages of a spill. Sheens vary in colour according to their thickness, ranging from almost transparent for the thinnest layers, to silvers, rainbows, and greys for the thicker layers.

Metallic: The next distinct oil colour, thicker than a rainbow, that tends to reflect the colour of the sky, but with some element of oil colour, often between a light grey and a dull brown. Metallic is a "mirror to the sky."

Transitional Dark (or True) colour: The next distinct oil on water layer thickness after metallic, that tends to reflect a transitional dark or true oil colour. At the “Transitional” stage most of the oil will be just thick enough to look like its natural colour (typically a few thousandths of an inch, or few hundredths of a millimeter), and yet thin enough in places to appear somewhat patchy.

Dark (or True) Colour: Represents a continuous true oil colour (i.e., its natural colour), commonly occurring at thicknesses of at least a hundredth of an inch (or, a little over a tenth of a millimeter). Oil thickness at this

“Dark” stage (especially in a calm and/or contained state) could range over several orders of magnitude. At sea, however, after reaching an equilibrium condition, most oils would not achieve an average thickness beyond a few millimeters. Heavy fuel oils and highly weathered or emulsified oils (especially in very cold water) could, of course, reach equilibrium states considerably greater than a few millimeters.

Black Oil: Area of black-coloured oil sometimes appearing with a latex texture. Often confused with kelp beds and other natural phenomenon.

Brown Oil: Typically, a 0.1 - 1.0 µm thickness of water-in-oil emulsion. Thickness can vary widely depending on wind and current conditions. May be referred to as heavy or dull-coloured sheens.

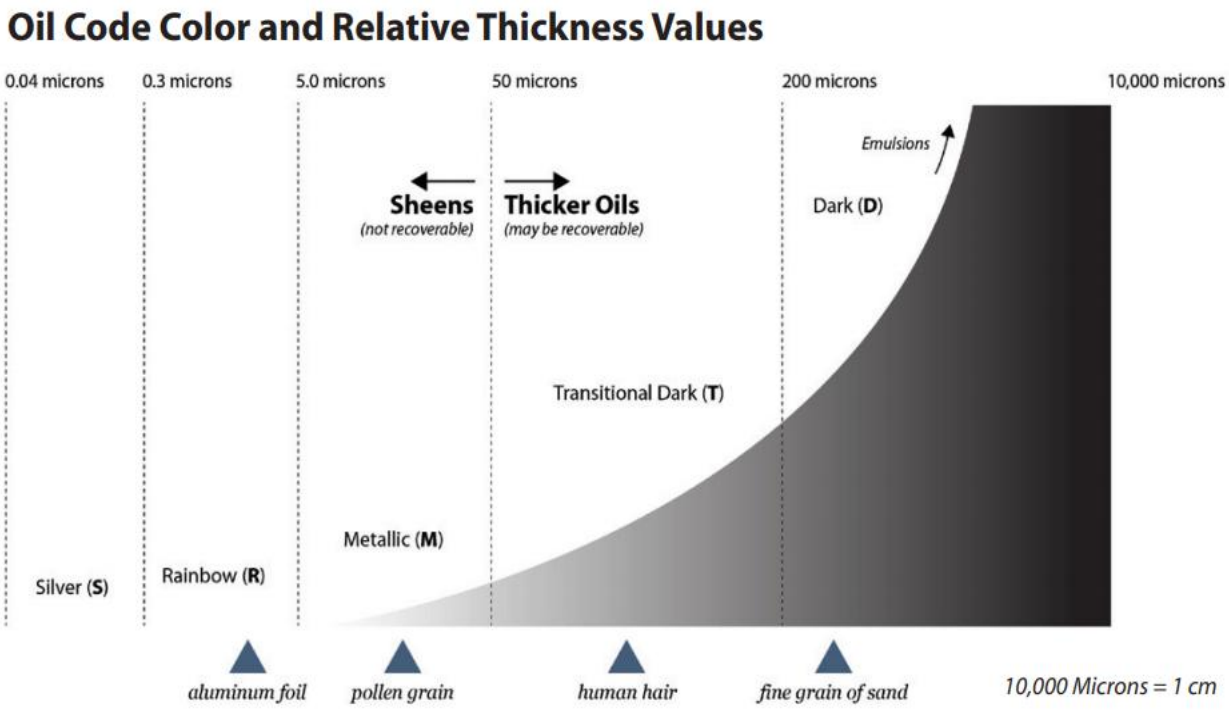
Dispersion: The breaking of an oil slick into small droplets mixed into the water column as a result of
breaking waves, other sea surface turbulence, and/or action of chemical dispersants.

Emulsification / Chocolate Mousse: The formation of a water-in-oil mixture formed as oil weathers. The tendency for emulsification to occur varies with different oils and is much more likely to occur under high energy conditions (winds and waves, oil well blowouts). This mixture is frequently referred to as mousse and can range from orange or tan to dark brown.

Tarballs: Weathered oil that has formed a pliable ball. Size may vary from pinhead to about 30 cm. Sheen may or may not be present.

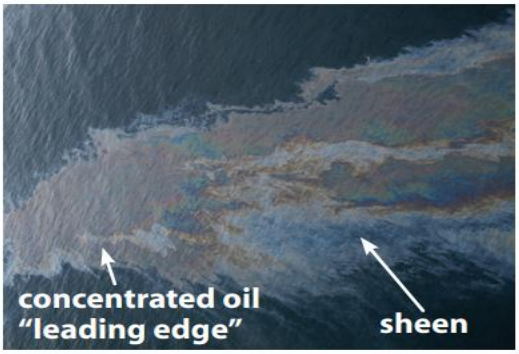
Code	Description	Layer-Thickness Interval		Concentration	
		µm	in.	m^3 per Km^2	bbl/acre
S	Sheen (silvery/grey)	0.04 - 0.30	1.6×10^{-6} – 1.2×10^{-5}	0.04 – 0.30	1×10^{-3} – 7.8×10^{-3}
R	Rainbow	0.30 – 5.0	1.2×10^{-5} - 2.0×10^{-4}	0.30 – 5.0	7.8×10^{-3} – 1.28×10^{-1}
M	Metallic	5.0 – 50	2.0×10^{-4} – 2.0×10^{-3}	5.0 – 50	1.28×10^{-1} – 1.28
T	Transitional Dark (or True) Color	50 – 200	2.0×10^{-3} – 8×10^{-3}	50 – 200	1.28 – 5.1
D	Dark (or True) Color	>200	$> 8 \times 10^{-3}$	>200	> 5.1

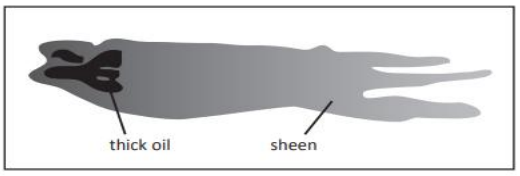
Chart modified by A. Allen from Bonn Agreement Oil Appearance Code (BAOAC) 02 May, 2006.



90/10 Rule of Thumb: 90% of the oil is located in 10% of observable oil

Oil that is thicker than a sheen is more susceptible to environmental influences, such as wind and surface currents, causing the oil to move across the water's surface and spread. The concentrated portion of the slick with dark oil is pushed by environmental conditions, leaving behind a thin film creating a visible sheen. The overflight observer can assist response operations by reporting where the "thick" oil is for recovery and where sheens persist for notification purposes.





7. Oil Structure / Distribution Terms

Streamers: Narrow bands or lines of oil (sheens, dark or emulsified) with relatively clean water on each side. Streamers may be caused by wind and/or currents but should not be confused with multiple parallel bands of oil associated with windrows, or with convergence zones or lines commonly associated with temperature and/or salinity discontinuities.

Convergence Zone: A long narrow band of oil (and possibly other materials) often caused by the convergence of two bodies of water with different temperatures and/or salinities. Unlike windrows and streamers, commonly associated with wind, convergence zones are normally

associated with the interface between differing water masses, or with the effects of tidal and depth changes that cause currents to converge due to density differences or due to large bathymetric changes. Such zones may be several kilometres in length and consist of dark or emulsified oil and heavy debris surrounded by sheens.

Windrows: Multiple bands or streaks of oil (sheens, dark, or mousse) that line up nearly parallel with the wind. Such streaks (typically including seaweed, foam, and other organic material) are caused by a series of counter-rotating vortices in the surface layers that produce alternating convergent and divergent zones. Sometimes referred to as Langmuir vortices (after a researcher in 1938), the resulting windrows begin to form with wind speeds of approximately six knots or more.

Patches: An oil configuration or structure that reflects a broad range of shapes and dimensions. Numerous tarballs could combine to form a "patch;" oil of various colours and consistency could form a patch or single layer 10s of cm to 10s (or even 100s) metres in diameter, and a large patch of dark or rainbow oil could have patches of emulsion within it. Patches of oily debris, barely able to float with sediment/plants in them, are called "tarmats," circular patches at sea are called "pancakes;" and REALLY BIG patches can simply be called "continuous" slicks. But they are all patches.

Tarballs: Discrete, and usually pliable, globules of weathered oil, ranging from mostly oil to highly emulsified with varying amount of debris and/or sediment. Tarballs may vary in size from millimeters to 20–30 centimeters across. Depending on exactly how weathered, or hardened, the outer layer of the tarballs is, sheen may or may not be present.

No Structure: Random eddies or swirls of oil at any one or more thicknesses. This distribution of oil is normally the result of little to no winds and/or currents.

Emulsified oil or mousse: Water-in-oil mixture that appears in various shades of orange, brown, and/or red.

Appendix 11: Table of Shoreline Clean-up Guidelines

Shoreline Type	Preferred Method	Possible Techniques	Techniques to Avoid
Mangroves	Natural cleaning (leave alone) Works best where natural flushing and drainage are good. Natural flushing can be enhanced.	Absorbents for collecting free oil. Low-pressure flushing of free oil from the sediment surface and mangrove aerial roots into areas where oil may be collected.	Substrate removal Vegetation removal High-pressure flushing (seawater) Chemical dispersants Beach cleaning machines
Coral reef flats	Natural cleaning (leave alone)	Low-pressure flushing to aid natural removal. Manual collection. Vacuum pumping to remove thicker oil layers and oil pockets.	Warm water flushing Substrate removal Chemical dispersants
Saltmarshes	Natural cleaning (leave alone)	Absorbents: rapid deployment could reduce the penetration of oil. Low-pressure water flushing if oil has remained on the sediment surface.	Substrate removal Vegetation removal High-pressure flushing (seawater) Chemical dispersants Beach cleaning machines
Soft sand beaches and mud flats	Natural cleaning (leave alone) Sediments may be too soft to allow access	Low-pressure water flushing to float off more viscous oils in the first days before penetration. Manual removal especially for cleaning oil patches.	Substrate removal Beach cleaning machines Substrate displacement High-pressure flushing
Firm sand beaches	Beach cleaning machines scrape oil into collection areas above high-water levels and remove it by truck. Manual collection especially for cleaning oil patches.	Low-pressure flushing on fairly thin layers of emulsion. Absorbents. Natural cleaning (leave alone) on exposed beaches.	Substrate removal Substrate displacement High-pressure flushing

Appendix 12: Wildlife Rehabilitation Techniques

1. Introduction

Pending the formulation of a proper oiled wildlife restoration plan, to deal with terrestrial and marine species such as birds, reptiles, mammals, other land and aquatic animals, this section will provide a non-exhaustive and basic focus on avian taxa and a wide range of such species that could potentially be presented with oiling. However, they have been grouped into larger taxonomical groups to help the clinician with species identification and treatment protocols (see below). Furthermore, before embarking on any rescue and rehabilitation of oiled wildlife, careful planning (facilities, staffing, medications, feeds, etc..) and funding need to be discussed with all stakeholders as it will likely take several months before rehabilitated animals can be released in a safe location, away from risks of recurrent oiling. Moreover, without addressing the aforementioned issues and the lack the adequate facilities, the probability of successfully treating, rehabilitating, and releasing oiled wildlife with a high post-release survival rate will be significantly reduced. In addition, there needs to be a discussion regarding whether oiled exotic species, e.g. feral pigeon (*Columba livia*) or Indian mynah (*Acridotheres tristis*) should be euthanised on the spot given their invasive status.

2. Birds

The most likely avian taxa to be presented include the following orders:

- **Order Charadriiformes**, e.g. waders, plovers, terns, curlews;
- **Order Anseriformes**, e.g. ducks, geese;
- **Order Pelecaniformes**, e.g. herons, cormorants, shags
- Order Procellariiformes, e.g. petrels and shearwaters; and
- **Order Passeriformes**, e.g. common mynah, Madagascar fody, red-whiskered bulbul
- Order Columbiformes, e.g. feral pigeons, turtle doves, etc.

Birds are affected by oil contamination in the following ways:

- **Externally:** feathers coated in oil lose their waterproofing and insulating properties, leading to loss of buoyancy, hypothermia, exhaustion, and drowning. Furthermore, chemical burns on the skin and eyes can also result.

- **Internally:** ingestion of oil resulting from the bird's instinct to preen the oil from its feathers, following accidental contaminated seawater or prey and inhalation of fumes. Direct toxicity from ingestion will lead to GI mucosal ulceration (exacerbated by stress) leading to diarrhea, melaena, dehydration, etc. Inhalation of fumes will cause pneumonia so some of these birds

will present with dyspnoea, which can also be due to drowning. Diarrhea and renal failure are also common complications.

3. Safety and Health Precaution

Sharp powerful beaks (e.g. herons, tropic birds, terns, or cormorants) may cause severe injuries, e.g. eye trauma to the novice and untrained handler, so wear protective goggles and do not put the bird's beak close to one's face. Other potential hazards include scratches from feet and being hit by wings (large bird species). Furthermore, zoonotic risks include salmonellosis, campylobacteriosis, and chlamydiosis, so maintain good hygiene practices, e.g. wash hands well after handling birds and wear facemasks.

4. Capture

a) Minimise stress by keeping quiet around oiled casualties and do not chase the bird for prolonged periods.
b) To increase the chances of successfully catching an oiled bird if it is on the shore, stand between it and the water to stop it from running back into the sea.
c) Use a towel or net to cover the bird and once caught, identify where the head is and grasp firmly behind it to stop the bird from turning around. Place bandage tape or rubber band around the tip of the beak to prevent it from biting.
d) Wrap the towel around the bird to stop it from flapping and damaging its wings.
e) Avoid restraining the bird's sternum with too much force as it will affect its breathing.

5. Handling

a) The key thing is to minimise handling time, which will, in turn, reduce stress. Keep the bird away from potential predators, e.g. dogs and cats. Handling the bird in a dark room will further help minimise stress.
b) Use a towel to wrap and restrain the bird. Ensure that it does not flap its wings.
c) DO NOT handle dyspnoeic birds. They should be stabilised with oxygen supplementation first.
d) The head should be grasped firmly at its base and covered with a towel if the bird is stressed.

6. Transportation

A well-ventilated appropriately sized pet carrier with a non-slip surface (e.g. towels) can be used to transport birds. Waders with long legs should be able to stand when transported, so they should be provided with a larger transport carrier to prevent damage to their delicate legs.

7. Initial assessment and triage

Minimise stress and handling time. Avoid transporting animals for long distances before assessment and stabilisation. Emaciated birds or those with concurrent wing/leg fractures have poor a prognosis and should be euthanised without delay. These birds do not cope well in prolonged periods in captivity and the associated stress will predispose them to secondary infections such as aspergillosis.

a) Record body condition and weight. The former is done by gently palpating the pectoral muscle mass (Grade 1: emaciated - 5 obese). Body condition instead of weight should be used in the decision-making process of whether to euthanise or treat.
b) Record cloacal temperature (normal reference range varies from 38.8° - 41°C). Cloacal temperatures below 32.5° Carry a poor prognosis.
c) Assess rehydration status - venous refill time, CRT, PCV, sunken eyes, etc.
d) Perform full clinical examination without stressing the bird - stop if dyspnoeic.
e) Blood sample to assess PCV and TP.

Birds suffering from hypothermia, in poor body condition, and severely dehydrated have a poor prognosis and should be euthanised as are those with concurrent fractures or underlying diseases (see above).

8. First-aid and initial stabilisation

Casualties should be kept in a quiet warm room (20 - 25°C - overheating can occur at higher temperatures in seabirds; keep away from dogs and cats) on soft substrate, e.g. rubber or foam matting as seabirds are prone to suffer from foot and keel injuries in captivity. Good ventilation and excellent hygiene protocols should be maintained as seabirds tend to produce a large amount of faeces. All birds should be stabilised before washing, i.e., correct dehydration, and hypothermia and prevent further oil ingestion.

a) Fluid therapy

Most oiled birds will be at least 10% dehydrated at presentation. Fluid therapy is a key component of the treatment of these patients. If the bird is bright and alert and can comfortably hold its head up, oral fluids can be administered at a rate of 50ml/kg/feed 2- 3 times daily. Otherwise, intravenous fluid therapy will have to be instigated at a rate of 50ml/kg/24h. Feeding with a fish diet in seabirds should only be instigated once dehydration has been corrected.

Activated charcoal should be added as an adsorbent to oral fluids to prevent further toxin absorption from the GI tract.

b) Thermal support

Hypothermic patients should ideally be gradually warmed before being washed, e.g. with heat lamps or hair drier if no other alternatives are available.

c) Prevent further oil ingestion

Remove oil from the oral cavity and around the beak with paper towels or cloths. Tape or use rubber bands to keep the beak shut to stop the bird from preening and ingesting more oil until it is stable enough to be washed.

d) Management of chemical burns

Ocular lesions should be carefully assessed and if the eye(s) are still viable, initiate treatment with topical ocular solutions (WITHOUT corticosteroids), saline, and antibiotic ointments. Remove any oil on legs/feet or bare skin and apply topical creams, e.g. silver sulfadiazine daily.

e) Management of traumatic injuries

If severe and heavily contaminated wounds are present, euthanasia may be warranted on welfare grounds. fI stable and non-life threatening injuries are present, then initiate analgesia, e.g. meloxicam 0.5 - 1mg/kg MI SID - BID ONLY once the patient has been well rehydrated.

f) Prophylactic antibiotic and antifungal therapy

Seabirds are prone to develop aspergillosis secondary to the stress of captivity and oiling, so prophylactic treatment with an antifungal such as itraconazole should be considered. The use of antibiotics to treat infected wounds and underlying infections should also be discussed.

9. Reassessment

Following the provision of initial treatment and stabilisation, the birds should be assessed daily and started on nutritional support, e.g. Emeraid Piscivore in seabirds or Hills A/d mixed with lectade and supplemented with multivitamins should initially be used for gavage feeding at a rate of 50ml/kg/feed. Force-feeding with marine fish thawed in the refrigerator overnight and not at room temperature should commence once the bird is stable. Regurgitation and vitamin deficiencies are potential complications.

10. Washing technique

Handwashing oiled birds with warm water at 40 - 42°C is still the method of choice for removing oil contamination. However, this is a highly stressful procedure for the birds, so at any signs of dyspnoea, the procedure should be discontinued and the bird dried and replaced in a warm room to recover. The cleaning procedure should involve two people: one handler and one cleaner. Wear

goggles and other PE before starting. The bird should be immersed (except the head) in a sink of warm water at the aforementioned temperatures and the feathers carefully rubbed to remove oil. Remove any contaminants from the oral cavity repeat the feather cleaning and then rinse the bird with warm water with a shower head. The cleaning cycle may have to be repeated multiple times either on the same occasion or at different times if the bird gets too stressed.

11. Post-washing care

Once washed, the bird should be placed in a separate warm and well-ventilated room dried with heated fans or hair driers and reassessed the following day for adequate waterproofing of feathers. Incomplete removal of oil contaminants means that the washing cycle will have to be repeated. Once confident that the oil has been removed from the plumage, the birds can have access to water, which will need to be changed regularly as seabirds tend to produce large and frequent volumes of faeces. Nutritional support and antibiotic and antifungal treatments should be continued throughout the captivity as required.

12. Release

Rehabilitated birds can only be released if they meet the following criteria and if there are appropriate safe sites for their release:

a) Well-waterproofed plumage and floating well at the surface of water 2. Swimming/diving without exhaustion and
b) Good appetite/maintaining/gaining weight and body condition
c) No evidence of underlying disease, e.g. respiratory infection with Aspergillus spp. (Eyes bright and shiny).
d) Walking well on both feet and using both to swim.
e) No evidence of pododermatitis and keel injuries secondary to captivity
f) Displaying normal flocking behaviour (Packed Cell Volume40 - 50%).

A 'hard release' technique can be used for adult seabirds (and other bird species) and soft release for juveniles of some species.

Appendix 13: Oil Spill Waste Management Plan

1.0 Background and Purpose

Oil spill waste management is one of the most logistically challenging, resource-intensive, and costly aspects of emergency response. International experience shows that improper waste handling can halt clean-up operations, magnify environmental impacts, and lead to long-term contamination of soils, water bodies, and sensitive ecosystems.

Mauritius and Rodrigues face unique constraints such as limited land availability, lack of long-term storage space, and insufficient hazardous waste treatment facilities. The Oil Spill Waste Management Plan for Mauritius and Rodrigues (2023) provide a strategic framework to overcome these challenges and proposes a structured approach for handling waste during incidents.

This Annex converts that plan into a streamlined, operational document suitable for real-time activation under the NOSCP 2025. It summarises past work, findings, and transforms them into technical and practical procedures for responders and decision-makers.

2.0 Institutional Roles and Responsibilities

- **Director of Environment (Incident Commander)**
  - Approves activation of disposal sites;
  - Authorises inter-island transfer of waste;
  - Oversees national compliance with OPRC/MARPOL obligations.

- **Director of Solid Waste Management Division (SWMD)**
  - Operates as **Disposal Group Supervisor** under Logistics Section;
  - Leads waste segregation, storage, transport, characterisation, and disposal;
  - Supervises waste contractors and ensures regulatory compliance.

- **Rodrigues Regional Assembly (RRA) (Oil Spill in Rodrigues)**
  - Local execution authority for waste operations;
  - Facilitates access to land, logistics, and local contractors;
  - Works within the national IMT command structure.

- **Waste Contractors**
  - Must be licensed for hazardous waste transport;
  - Must maintain precise documentation and ensure safety compliance;
  - Operate under supervision of SWMD and Logistics Section.

- **NCG, Police, Port Authorities**
  - Securing waste transport routes;
  - Ensuring safety of convoys;
  - Preventing unauthorised access to waste sites.

3.0 Waste Streams and Expected Volumes

3.1 Expected Waste Multipliers

The Plan highlights typical waste multipliers observed during spills:

- Light crude: **5–10 times** the volume of oil spilled
- Heavy fuel oil: **10–30 times**
- Emulsified oil: up to **50 times**
- Oiled debris from urban coastlines: up to **70 times**

Understanding these multipliers is vital for scaling temporary storage and logistics early.

3.2 Detailed Stream Classification

The following categories must be established **at the start of a spill**:

- **Liquid Waste Categories**
  - Pure recovered oil;
  - Oil-in-water emulsions;
  - Oily water from skimming/decanting;
  - Decontamination wastewater;
  - Drainage from temporary storage bunds.

- **Solid Waste Categories**
  - Oiled sand, shingle, cobbles;
  - Oiled seaweed, roots, mangroves, seagrass;
  - Oiled man-made debris;
  - Mixed organic/inorganic waste.

- **Hazardous/Special Waste**
  - Oiled wildlife carcasses;
  - Contaminated PPE;
  - Damaged sorbent pads and booms;
  - Drums, bags, and containers that cannot be reused.

Each category dictates a specific treatment and disposal pathway.

4.0 Waste Management Technical Requirements

4.1 Waste Minimisation Operational Measures

Minimisation begins with clean-up strategy selection. Operational planners must ensure:

- Manual recovery is preferred for sensitive shorelines to avoid sediment capture.
- Vacuum recovery units are used to reduce debris contamination.
- Sorbents are used sparingly, only when mechanical recovery is impossible.
- Secondary contamination is prevented by designating clean and dirty zones.
- Daily decanting reduces storage pressure.

4.2 Waste Segregation Procedures

Segregation must be integrated into field operations through:

- Different coloured bags/drums;
- Pre-labelled containers for each category;
- On-site supervisor checking segregation before transport;
- Mandatory separation at every staging area.

4.3 Sampling & Characterisation

Sampling is mandatory when:

- Waste is mixed or unclear;
- Organic and inorganic waste mixes occur;
- Liquids have uncertain composition;
- Material may be transported overseas.

Sampling requirements include:

- Hazardous waste codes;
- Flash point, water content, viscosity;
- Contamination level;
- Presence of HNS.

5. Storage Requirements

5.1 On-Site Temporary Storage

Key operational considerations:

- Select areas **above high-tide line**;
- Line ground with 500–1000 microns HDPE sheets;
- Construct bunds with sandbags or portable berms;
- Provide rain covers and ensure run-off control;

- Maintain 24/7 security.

On-site storage is **short duration** (24 – 72 hours).

5.2 Intermediate Storage Areas (ISAs)

ISAs must be pre-identified and listed in NOSCP operational annexes.

Criteria include:

- Minimum **800–1,500 m²** area;
- Road access for trucks;
- Fencing and controlled entry;
- Firebreaks and extinguishers;
- Lighting, drainage, spill kits;
- Dedicated decontamination zone.

ISAs serve as holding points during prolonged operations.

5.3 Long-Term Storage and Disposal Routes

Mauritius' constraints include:

- Limited landfill capacity;
- No specialised oil-waste treatment plants;
- Rodrigues lacks engineered landfill cells.

6.0 Transport, Tracking and Documentation

6.1 Tracking Tools

Every container must carry:

- Unique ID number;
- Waste category code;
- Origin site;
- Time/date;
- Inspector signature.

A centralised database under the Planning Section must log daily totals.

6.2 Transport Requirements

- Trucks must be licensed hazardous waste carriers;
- GPS tracking is recommended during major spills;
- Tarpaulins must fully cover loads;
- Drivers must carry emergency spill kits;

- Escorts provided for high-risk routes.

6.3 Documentation

Mandatory documents include:

- Waste Transfer Notes;
- Hazardous Waste Movement Permits;
- Daily Waste Volume Logs;
- Container Inspection Records;
- Disposal Receipts.

7.0 Disposal & Treatment Options

7.1 On-Island Treatment Feasibility

- Bioremediation is suitable for oiled soil/sand with low toxicity.
- Thermal desorption may be considered via private operators.
- Solidification/stabilisation prior to landfilling is recommended.

7.2 Export Procedures (Basel Convention)

If no local solution exists:

- A transboundary shipment plan must be submitted;
- Receiving country must provide written consent;
- Exporter must ensure environmentally sound disposal;
- A return certificate is mandatory post-disposal.

7.3 Wildlife Waste

- Incineration is the preferred method;
- Biohazard bags and containers must be used;
- Carcasses must never be mixed with other waste streams.

8.0 Health, Safety and Environmental Protection

8.1 Operational Safety Measures

- Use of PPE: gloves, goggles, respirators, boots, Tyvek suits.
- Buddy system must be implemented for all field work.
- Heat stress monitoring for responders.
- Air quality monitoring when working with volatile oils.
- Portable showers for decontamination.

8.2 Decontamination Procedures

- Personnel decontamination line must have wash and rinse basins;
- Tools and machinery washed with appropriate detergents;
- Water collected in temporary tanks for treatment;
- PPE separated into reusable and disposable categories.

Appendix 14. Example of Clean-Up Endpoints for Shoreline Types of the Coastline of Mauritius

Shoreline Types	Example Clean-Up Endpoints
Exposed rocky shores	Oil on the rocks is no longer sticky Shoreline no longer generates sheens
Solid man-made structures	Removal of oil until it no longer rubs off on contact (to no more than a stain) Shoreline no longer generates liquid oil and heavy rainbow sheens
Riprap structures	Shoreline no longer releases liquid oil and heavy rainbow sheens All flushable oil in the crevices and on the sides and bottom of individual pieces of the riprap has been removed. Removal of oil until it no longer rubs off on contact (to no more than a stain)
Mud	No visible oil on the mud surface
Sand Beaches	No visible oil and tarballs on the sand surface No layers of oil or tar patties are found in trenches dug into the beach
Mixed sand and gravel beaches	All liquid oil in the sediments has been removed and no more than a stain may remain on the gravel-sized sediments. No layers of oil or tar patties are found in pits dug by the inspection team.
Limestone cliff	Wiping off stains until it is less than 0.1cm thick Further clean-up efforts will result in excessive mechanical damage that will cause more harm than the natural removal of oil residues.
Exposed and sheltered tidal flats	Shoreline no longer releases sheens. Further clean-up efforts will result in excessive habitat disruption that will cause more harm than the natural removal of oil residues.
Mangroves	Wiping off stains on the root until it is less than 0.1cm thick No oil layers in pits dug in the sediment
Marshes	No more free-floating oil in the marsh Shoreline no longer releases sheens

Appendix 15: Environmental and Socio-Economic Framework for Claims Procedure

1.0 Purpose and Scope

This annex provides the operational framework for documenting, evaluating, and preparing compensation claims for environmental, socio-economic, health, and social damages resulting from an oil spill incident in Mauritius or Rodrigues. It draws on the Environmental and Socio-Economic Impact Assessment Framework (ESEIF) developed in 2023 to support the Ministry of Environment in submitting admissible, well-substantiated claims under national law and international conventions.

The annex ensures that all claims are:

- Evidence-based and compliant with CLC 92, FUND 92 and Bunkers 2001 regimes
- Supported by proper documentation, monitoring, valuation and reinstatement measures
- Linked directly to losses incurred, as required by IOPC Fund guidelines
- Prepared through coordinated actions across responsible agencies

2.0 Claims and Compensation Framework

2.1 Applicable Legal Regime

Under Environment Act 2024, Sub-Part D – Damages for Oil Spill, Sections 72–73, the owner of a pollutant is strictly liable for damages and all costs incurred for spill response, clean-up and disposal.

2.2 Types of Claims

The internationally recognised claim categories include:

- Cost of Clean-up and Preventive Measures
- Property Damage
- Consequential Economic Loss
- Pure Economic Loss (losses without physical contamination, e.g., tourism, fisheries)
- Ecological and Environmental Damage
- Costs of Experts, Advisors and personnel

These categories guide all documentation requirements in this annex.

3.0 Claims Procedure (Operational Steps)

Mauritius follows the IOPC-aligned claims process flow:

Incident definition → Costing → Documentation → Submission → Review → Settlement.

The following provides the operational interpretation for NOSCP responders:

Step 1: Define Incident Information

For each incident, responders must record:

- What happened (type, location, timing, causes)
- Responsible party or ship identification
- Geographic extent of contamination
- Clean-up operational footprint

Early, accurate incident definition is the basis of all downstream claims processing.

Step 2: Quantify Costs and Losses

Costs must be shown as **reasonable, necessary and directly linked** to response actions. Claimants must document:

- What was done
- Why it was done
- Where and when it was done
- By whom, and at what cost
- What equipment and consumables were used

Invoices alone are insufficient; narrative justification and operational logs must accompany all cost sheets.

Step 3: Compile Supporting Evidence

Claims must include:

- Maps, GPS-tagged photos, SCAT reports
- Pollution extent and trajectory documentation
- Work logs, timesheets, vessel/aircraft logs
- Fuel usage, equipment deployment records
- Contracts, charter agreements, tender documents
- Waste disposal records and manifests
- Meeting minutes and ICS decision logs

These elements are critical for admissibility. Missing documentation jeopardises recovery.

Step 4: Submit Claim

Claims are submitted to the P&I Club or IOPC Fund using official claim forms. A unique claim reference number is issued.

Step 5: Review, Queries and Assessment

Claims are reviewed to confirm:

1. Reasonableness of actions
2. Reasonableness of costs
3. Accuracy of cost calculations

Additional information may be requested and must be supplied promptly.

4.0 Environmental Impact Documentation and Valuation

This section outlines how Mauritius must document environmental impacts for claims.

4.1 Environmental Components at Risk

Mauritius and Rodrigues contain highly sensitive ecosystems including:

- Mangroves, Marshes
- Coral reefs, Seagrass beds
- Intertidal sediments and benthic fauna
- Plankton and larvae
- Marine turtles, seabirds, fish
- Marine mammals
- Terrestrial biodiversity on islets

Each component responds differently to oil exposure; documentation must reflect the specific ecological pathways and mechanisms of impact as outlined in the ESEIF.

4.2 Admissibility of Environmental Damage Claims

Only two categories of environmental damage are claimable under the international regime:

1. **Post-incident studies**
2. **Reinstatement/restoration measures**

Abstract "value-of-nature" approaches, contingent valuation or punitive calculations are not admissible.

4.3 Post-Incident Studies (Claim Requirements)

Post-incident studies must:

- Determine extent, nature and duration of environmental damage
- Establish exposure pathways using sampling, GCMS analyses, PAH profiles

- Compare pre-spill and post-spill conditions
- Compare affected habitats with uncontaminated reference sites
- Follow sound scientific methodology and avoid unnecessary research

Studies should be initiated early and based on risk-proportionate design.

4.4 Reinstatement Measures (Claim Requirements)

Reinstatement measures must:

- Accelerate natural recovery
- Be technically feasible and scientifically justified
- Avoid causing damage to other habitats
- Demonstrate a clear link between the measure and the damaged resource
- Be cost-proportionate

Examples include mangrove replanting, dune rehabilitation, predator control, shellfish reseeding, disturbance reduction, or enforcement of protective measures.

5.0 Socio-Economic Impact Documentation and Valuation

5.1 Socio-Economic Impact Categories

The following socio-economic impacts must be documented for claims:

- Property damage (contaminated structures, boats, gear)
- Economic loss to businesses (pure and consequential)
- Fisheries impacts (capture fisheries, mariculture, processing)
- Tourism impacts (hotels, charters, beaches, water sports)
- Agriculture impacts (if contamination affects irrigation or livestock)

Valuation must follow IOPC-accepted models, including gross profit loss calculations, business interruption models and fisheries revenue models.

5.2 Documentation Required

- Daily sales, revenue, and operational logs (pre- and post-spill)
- Proof of business ownership and licences
- Catch logs, landing data, processing volumes (fisheries)
- Occupancy rates, cancellations, refunds (tourism)
- Evidence of contamination or government restriction orders
- Test results for taint or PAH levels (where relevant)

Economic claims must show clear causation (spill → restrictions/contamination → financial loss).

6.0 Health Impact Evaluation Framework

The ESEIF recommends establishing a **Community Health Observing System** to evaluate acute and long-term health impacts following exposure to oil hazards. Claims for health impacts must be supported by:

- Medical screening data
- Exposure data (BTEX, PAH, VOC exposure)
- Health cohort studies
- Biomarker and epidemiological analyses
- Records of health service utilisation
- PPE usage and occupational exposure logs

The framework relies on standardised data collection, secure data management and validated tools for measuring health outcomes.

7.0 Social Impact Documentation

Social impacts relate to:

- Community disruptions
- Loss of access to coastal resources
- Livelihood displacement
- Loss of cultural and recreational use

These are not always fully claimable under international conventions but must be documented for national purposes, policy decisions and negotiations with insurers or shipowners.

8.0 Spill Impact Mitigation Assessment (SIMA) and Net Environment Benefits Analysis

SIMA and NEBA are structured decision-support tools used to compare the environmental trade-offs of response options (such as dispersants, mechanical recovery) during response operations. SIMA and NEBA documentations are crucial when justifying certain response actions for claim admissibility.

This includes:

- Comparative risk matrix
- Justification of chosen response option
- Environmental trade-off analysis
- Anticipated and actual impact outcomes
- Alignment with NEBA principles

SIMA and NEBA records must be included in all claims involving environmental response decisions.

9. Data Systems, Monitoring and Sampling (M&S)

9.1 Baseline and Incident Data Requirements

Mauritius must maintain long-term environmental and socio-economic baseline databases that capture:

- Water/sediment quality
- PAH background levels
- Biodiversity conditions
- Fisheries landings
- Tourism occupancy trends
- Socio-economic indicators

During an incident, M&S activities must provide:

- Chemical analysis of oil and media (water, sediment, biota)
- SCAT reports
- Time-series monitoring of recovery
- Health and exposure monitoring data

9.2 M&S Team Organisation

An M&S Team must be established and integrated into the IMS/ICS structure. Key roles include:

- Team Lead
- Sampling and Laboratory Unit
- Data Management Unit
- Health Monitoring Unit
- Environmental Assessment Unit

These teams ensure consistency, traceability and validity of data submitted for claims.

Appendix 16: List of Equipment

List of Oil Spill Combat Equipment available at National Coast Guard and Special Mobile Force
National Coast Guard
Booms (sorbent, solid fence type and inflatable)
Power packs
Skimmers
Dispersants
Floating and mobile tanks
Sprayers
Sorbent pads
Storage containers
Special Mobile Force
Booms (sorbent, solid fence type and inflatable type)
Skimmers
Sorbent pads
Peat
Self erecting tank
Manual oil recovery tools

In this document, only the type of oil spill combat equipment available at the Special Mobile Force and the National Coast Guard is being provided. The detailed list of oil spill combat equipment along with their technical details are available at the level of the Ministry of Environment, Solid Waste Management and Climate Change and the abovementioned organisations.

Appendix 17. Oil Spill Combat Equipment Auditing and Inventory

1.0 Introduction

Effective national preparedness depends on a reliable and well-maintained stock of oil spill response equipment. This annex translates an operational framework for equipment auditing, inventory management and readiness assurance, ensuring that all equipment can be safely and rapidly mobilised during an oil spill.

This annex outlines:

- The national methodology for equipment auditing;
- Minimum requirements for maintaining response readiness;
- The types of equipment to be inventoried;
- Procedures for updating, verifying and validating inventories;
- Maintenance and commissioning requirements;
- Integration with IMS/ICS during response.

2.0 Purpose and Scope

This annex provides a structured approach for:

1. Auditing all oil spill response equipment nationally across SMF, NCG, MPA, CEB, private operators, and authorities from Rodrigues Island;
2. Maintaining an updated inventory of equipment types across the national system;
3. Establishing minimum standards for storage, maintenance and readiness;
4. Ensuring equipment compatibility, interoperability and safety;
5. Guiding replacement planning and budgeting.

The operational aim is to ensure that Mauritius maintains a minimum, risk-commensurate level of functional containment, recovery, temporary storage and ancillary systems, in line with OPRC obligations.

3.0 Equipment Auditing System

3.1 Annual Audit Requirement

All oil spill response equipment in Mauritius and Rodrigues will be subjected to an annual audit, coordinated by the MOE in collaboration with custodial agencies. The audit must verify:

- Condition and operability of equipment
- Availability of ancillary equipment
- Presence of critical spare parts
- Storage conditions

- Maintenance records
- Deployment capability and compatibility
- End-of-life identification
- Training on specific equipment

3.2 Audit/Inventory Classification Categories

Equipment are classified under one of the following:

1. **Response Ready** – immediately deployable
2. **Requires Servicing** – operable with minor repairs or inspections
3. **Not Response Ready** – major repair, replacement or commissioning required

This classification ensures clear reporting to the Director of Environment and supports procurement and maintenance prioritisation.

3.3 Audit Reporting

All agencies are required to submit a standardised Audit Report to the Ministry, including:

- Audit forms
- Photographic evidence
- Maintenance records
- Commissioning reports for new equipment
- End-of-life recommendations
- Gaps and deficiencies
- Required budget for corrective measures

4.0 National Equipment Inventory

4.1 Purpose of the Inventory

A simplified, nationally consolidated inventory of **equipment types** ensures:

- Rapid identification of national capability
- Interoperability during multi-agency operations
- Prioritisation for national deployment and mutual aid
- Strategic planning for procurement and standardisation

4.2 Equipment Types to Be Listed

Based on the 2025 inventory, Mauritius and Rodrigues Island have the following major equipment categories:

A. Containment Systems

From multiple agencies including SMF, NCG, MPA and Rodrigues:

- Inflatable high-seas booms
- Inflatable nearshore booms
- Solid-floatation fence booms
- Harbour/lagoon booms
- River booms
- Permanent booms (installed in port zones)
- Absorbent booms (for low-risk containment)
- Boom reels (mechanical and manual)

B. Recovery Systems (Skimmers)

From multiple agencies including SMF, NCG, MPA and Rodrigues:

- Weir skimmers (various capacities)
- Disc skimmers (e.g., Slickbar, Desmi, Xinjinghua)
- Brush skimmers (e.g., ScorSkim series)
- High-capacity skimmers (Foilex TDS series)
- Pump-driven recovery systems

C. Temporary Storage Systems

From multiple agencies including SMF, NCG, MPA:

- Self-erecting storage tanks
- Fastanks (3.8–7.5 m^3 models)
- Floating temporary storage tanks (10–20 tonne)
- Integrated cargo tanks (on the anti-pollution vessel)
- Intermediate Bulk Containers (IBC tanks)

D. Ancillary Equipment

Essential for deployment of primary units:

- Powerpacks (various capacities)
- Spate pumps
- Air blowers and compressors
- Hydraulic hoses
- Towing bridles and lines
- Anchors and fenders
- Lifting straps, slings and cranes

- Decontamination kits (noted as lacking or insufficient in most agencies)
- Toolkits and spare-part kits associated with each equipment class

E. Sorbents and Consumables

- Sorbent pads
- Sorbent rolls
- Sorbent booms
- Peat-based absorbents

F. Surveillance and Monitoring Tools

(Primarily NCG)

- Drones (e.g., DJI Matrice 350 RTK)
- Submersible ROV systems

G. Vessels and Deployment Platforms

- Coast Guard vessels used as deployment platforms
- Cargo trailers (noted in Rodrigues and SMF)
- Forklifts, cranes and transport vehicles

H. Personal Protective Equipment (PPE)

- Tyvek suits
- Hip waders
- Gloves, masks, goggles
- Boots
- Safety and decontamination PPE

The oil spill combat equipment are kept at the NCG-PRU compound in Port Area, at MPA-shed in Port Area, at the SMF Head Quarters in Vacoas and at SSR International Airport (SMF compound).

5.0 Maintenance and Commissioning Requirements

5.1 Standardised Maintenance System

All custodial agencies adopt a standardised maintenance system, including:

- Work order forms
- Asset tracking registers
- Preventive maintenance schedules

- Records of repairs
- Deployment logs
- Equipment history files

These elements are already recommended in the audit (Section 7) .

5.2 Commissioning of New Equipment

All newly procured equipment must undergo formal commissioning:

- Initial deployment
- Functional testing
- Operator training
- Integration with existing equipment
- Documentation of commissioning results

6.0 Storage Standards

Poor storage was identified as a major contributor to equipment degradation, especially at SMF and Rodrigues.

6.1 Minimum Storage Conditions

- Equipment must be kept under cover, protected from sun and rain
- Sorbents must be stored off the floor in sealed containers
- Booms must be kept on pallets or reels
- Sensitive electronics must be stored in temperature-controlled environments
- PPE must be stored in dry conditions away from contaminants

6.2 Transport Readiness

- Equipment must be pre-packed into units (“packages”) with all ancillaries included
- Trailers must be roadworthy and compatible with towing vehicles
- Forklift access must be ensured

7.0 Integration with ICS During Response

During an incident:

- The **Logistics Section** maintains responsibility for equipment status, mobilisation and tracking.
- The **Operations Section** determines equipment priorities based on operational needs.
- The **Planning Section** must update the Incident Action Plan with available equipment capability and limitations.

- The **Finance/Administration Section** must document repair costs, replacement needs and consumable usage for claims.

The national inventory (types only) ensures all sections have consistent situational awareness.

Appendix 18. Oil Spill Volunteer Coordination Plan

1.0 Background

Major oil spills often trigger significant public interest and volunteer mobilisation. While this enthusiasm can support response operations, unmanaged volunteer involvement can introduce safety hazards, disrupt professional response activities, and increase liabilities. Volunteer participation has historically played a significant role in major environmental emergencies. The MV Wakashio spill demonstrated that, while volunteers bring strong motivation and community solidarity, their involvement requires a structured and safe system to avoid operational disruption and to protect their well-being. The *Oil Spill Volunteer Coordination Plan for Mauritius and Rodrigues (2023)* was developed in response to this need, and this annex translates that plan into a clear operational framework for activation during oil spills.

The purpose of this annex is to provide a coherent and practical approach for mobilising, registering, assigning, supervising, and demobilising volunteers in a manner that complements the Incident Command System (ICS) and ensures safety, accountability, and efficiency during response operations. It outlines how volunteers can be effectively integrated into the national response structure while ensuring that their involvement does not compromise the professionalism of the response or the legal and safety obligations of the Government.

1.1 Definition of Volunteer

A volunteer is any unaffiliated or affiliated individual offering assistance during an oil spill incident without financial compensation. Volunteers may include NGOs, community groups, students, specialists, or spontaneous members of the public.

2.0 Organisational Structure and ICS Integration

Volunteer mobilisation is not automatic. It is a strategic decision taken by the Incident Management Team based on the characteristics of the spill, the duration of operations, and manpower requirements. Volunteers are most useful for low-risk, labour-intensive tasks, such as basic shoreline clean-up, support to logistics, administrative work, and simple wildlife observation roles.

Operationally, volunteers shall not be deployed to:

- High-risk shoreline zones;
- Areas requiring specialised equipment or machinery;
- Offshore operations;
- Wildlife handling requiring specialised training;

- Any task presenting chemical exposure or structural hazards.

High-risk tasks such as offshore recovery, boom deployment, dispersant use, waste segregation in toxic zones, and hazardous shoreline operations are **prohibited** for volunteers. This ensures that volunteers contribute effectively while maintaining safety and avoiding interference with technical operations.

3.0 Volunteer Integration within the IMT

Under ICS, volunteers operate under the Planning Section through the Volunteer Unit Leader (VUL) or under the Operations Section (shoreline tasks). The VUL coordinates with the:

- Planning Section Chief / Evaluation Cell Chief;
- Operations Section Chief;
- Logistics (for PPE, transport, feeding, accommodation if needed);
- Safety Officer;
- Public Information Officer.

A **Volunteer Coordination Centre (VCC)** is established as the primary interface between the public and response system.

3.1 Key Roles

- **Volunteer Unit Leader (VUL)** – manages the volunteer programme within IMT;
- **VCC Coordinator(s)** – oversee volunteer processing at designated centres;
- **VCC Team Leaders** – run registration, safety briefings, assignment, decontamination, and demobilisation;
- **On-Scene Coordinator (OSC)** – responsible for volunteers deployed to shoreline activities.
- **Affiliated volunteers**: pre-identified groups (NGOs, community organisations).
- **Spontaneous volunteers**: individuals who self-mobilise after hearing news of a spill.

4.0 Volunteer Coordination Centre (VCC)

The Volunteer Coordination Centre serves as the controlled interface between the public and the response system. It prevents volunteers from arriving directly at contaminated sites and ensures orderly processing, training, and deployment. The VCC must be safe, accessible, and adequately resourced. The VCC also serves as the central hub for managing volunteer flow. It provides a structured space for registration, screening, safety induction, PPE issuance, task assignment, transportation to operational sites, and demobilisation at the end of shifts. The establishment of

a VCC ensures that volunteers do not self-deploy to contaminated areas and provides the IMT with a controlled environment for mobilisation.

A suitable VCC must be located in an accessible, safe, and secure area away from contaminated zones. It must have sufficient space for queues, seating, briefing areas, and storage of PPE and equipment.

Operationally, the VCC must include:

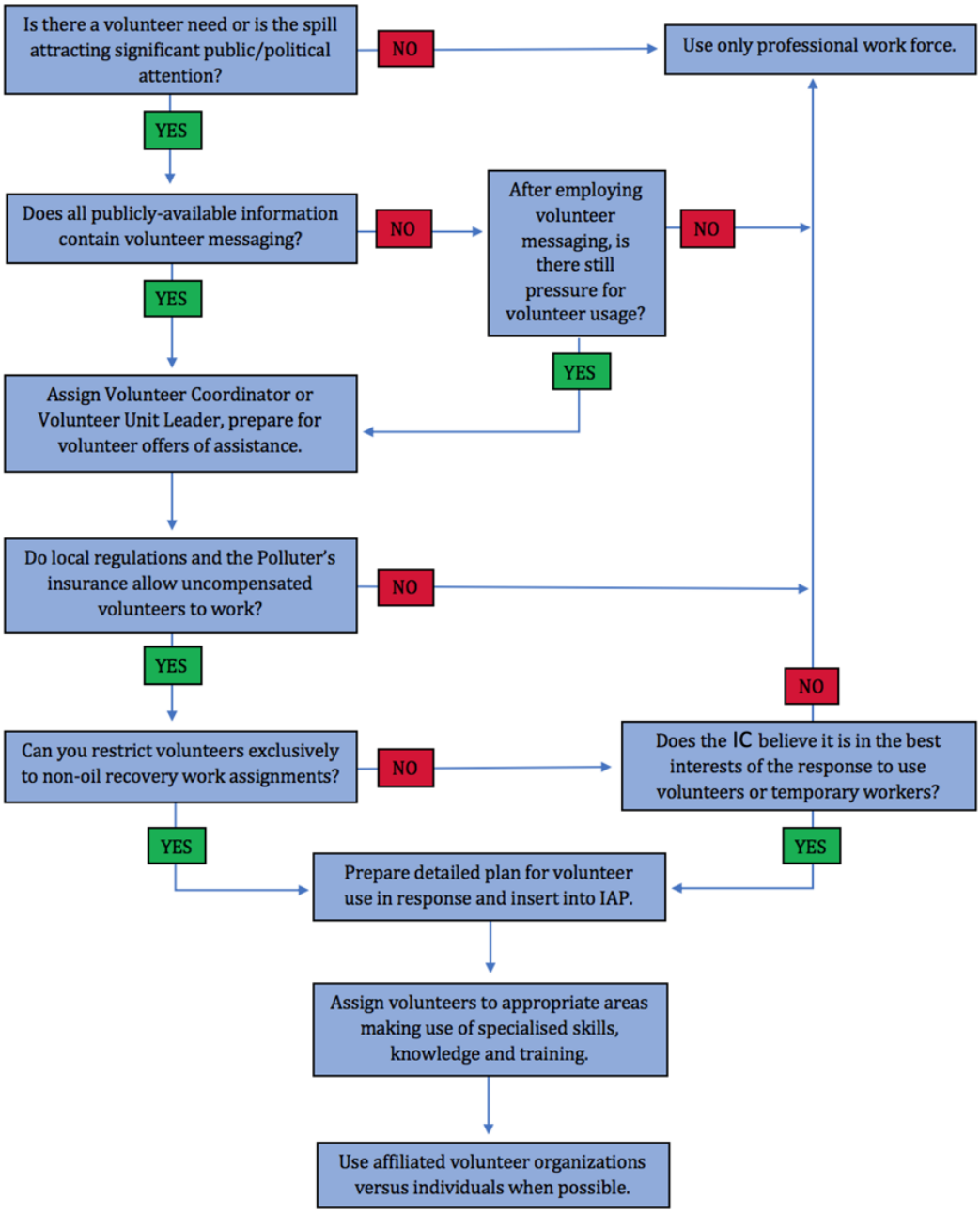
- Reception and registration areas;
- Safety briefing and induction space;
- PPE distribution point;
- Transport staging area;
- Decontamination and demobilisation zone;
- Administrative/logistics support space.

The VCC must be staffed with a Coordinator, registration clerks, safety officers, medical personnel, and logistics staff. Their role is to ensure discipline, accuracy, and safety in volunteer management.

5.0 Activation of the Volunteer Coordination Plan

The mobilisation of volunteers is not automatic—even during large spills. Activation is a deliberate decision made by the Incident Management Team (IMT) in consultation with the Ministry of Environment. This decision is based on the severity and scale of the incident, the duration of anticipated clean-up operations, and the capacity of trained responders.

A structured decision-making process, supported by the activation decision tree (figure below), guides whether volunteers should be mobilised.



Factors considered include public safety, the complexity of the shoreline, waste management capacity, and the ability of the IMT to supervise volunteers effectively. Volunteers are used only when conditions are safe and when their involvement provides a clear operational benefit.

Once activation is approved, the Public Information Officer initiates official communication channels to invite volunteers through controlled means. Spontaneous volunteer arrivals are directed exclusively to the Volunteer Coordination Centre (VCC), which functions as the gateway for all volunteer processing.

6.0 Volunteer Registration and Processing Procedures

Effective volunteer involvement begins

- Full name and ID details;

- Contact information;
- Skills and affiliations;
- Medical conditions and limitations;
- Emergency contacts;
- Availability;
- Task suitability.

Volunteers receive a registration number and an identification wristband or badge.

Following registration, volunteers undergo a brief health assessment to identify potential limitations or risks. Individuals with specific vulnerabilities—including minors, pregnant women, persons with significant medical conditions, or individuals not fit for physical labour—may still participate but will be assigned to support roles away from operational zones.

Each volunteer is assigned an identification number and issued with the appropriate level of personal protective equipment (PPE), according to the type of task and operational area they will support. This PPE may include gloves, masks, boots, Tyvek suits, or protective eyewear, depending on the risk level associated with their tasks.

The registration and processing procedure ensures that volunteers are properly accounted for at all times, meet minimum fitness and safety requirements, and are fully briefed and equipped before entering any operational area.

7.0 Training and Safety Requirements

Volunteers require short but mandatory safety briefings to understand the nature of oil contamination, risks associated with shoreline operations, and correct use of PPE. This ensures they work safely, avoid contamination, and do not inadvertently disturb sensitive habitats or equipment.

Operationally, training must cover:

- Hazards of oil exposure;
- Proper PPE use;
- Heat stress and hydration;
- Handling oiled debris and shoreline materials;
- Safe distances from machinery;
- Emergency procedures and reporting lines.

Volunteers cannot be deployed without having completed the induction and demonstrating understanding of the safety requirements.

8.0 Task Assignment and On-Site Supervision

Volunteer roles must match the risk profile of the assigned sites. The Operations Section, working with the Volunteer Unit Leader, determines the number of volunteers required, their tasks, and their deployment schedule, based on the daily Incident Action Plan.

Operationally, deployment requires:

- Assigning a Team Leader to every volunteer group;
- Briefing volunteers on site-specific hazards;
- Ensuring continuous supervision;
- Monitoring weather and tide conditions;
- Reporting issues through the ICS communication channels.

Supervision is mandatory to prevent mistakes, reduce safety risks, and ensure tasks are carried out as planned.

9.0 Welfare, Support, and Documentation

Volunteer welfare is essential for maintaining morale and safety. Oil spill response often involves long hours in difficult conditions, and volunteers require adequate rest and hydration. The Logistics Section supports volunteers by ensuring access to water, food, shelter, sanitation, and first aid.

Operationally, welfare management includes:

- Scheduled rest periods;
- Hydration stations;
- Medical support at the VCC and operational sites;
- Transport to and from assigned locations;
- Immediate reporting of injuries or discomfort.

Documentation of volunteer attendance, activities, and incidents ensures proper accountability and fulfils legal and operational requirements.

10.0 Demobilisation and End-of-Shift Procedures

At the end of each shift, volunteers must return to the VCC for controlled demobilisation. This protects their safety, prevents contamination from leaving the site, and ensures accurate recording of volunteer participation.

Operationally, demobilisation includes:

- PPE removal and disposal or cleaning;

- Basic medical checks if required;
- Recording departure time;
- Returning any assigned equipment;
- Receiving instructions for future shifts;
- Completing feedback or incident reports.

A structured demobilisation system prevents contamination spread and supports accurate performance tracking.

11.0 Post-Response Volunteer Engagement

Once operations conclude, volunteers may be invited to take part in community briefings or environmental recovery programmes. This helps maintain public trust and strengthens future preparedness.

Operationally, post-response activities may include:

- Issuing certificates of participation;
- Providing psychological support if required;
- Sharing updates on environmental restoration;
- Retaining contact information for future training or exercises.

This fosters long-term engagement and builds a more resilient volunteer base for future incidents.

Appendix 19. Reports Forms - POLREPS & SITREPS

Pollution Reporting System (Initial Pollution Report)

INTRODUCTORY PART

ADDRESS	ORIGIN:
	DESTINATION:
DTG (Day Time Group)	
SERIAL NUMBER	

Part II Pollution Warning (POLWARN)

1.	DATE AND TIME	
2.	POSITION	
3.	INCIDENT	
4.	OUTFLOW	
5.	ACKNOWLEDGE	

Part III Pollution Information (POLINF)

6.	DATE AND TIME	
7.	POSITION AND/OR EXTENT OF POLLUTION ON/ABOVE/IN THE SEA	
8.	CHARACTERISTICS OF POLLUTION	
9.	SOURCES AND CAUSES OF POLLUTION	
10.	WIND DIRECTION AND SPEED	

11.	CURRENT DIRECTION AND SPEED AND/OR TIDE	
12.	SEA STATE AND VISIBILITY	
13.	DRIFT OF POLLUTION	
14.	FORECAST OF LIKELY EFFECT OF POLLUTION AND ZONES AFFECTED	
15.	IDENTITY OF OBSERVER/REPORTER IDENTITY OF SHIPS ON SCENE	
16.	ACTION TAKEN	
17.	PHOTOGRAPHS OR SAMPLES	
18.	NAMES OF OTHER STATES AND ORGANIZATIONS INFORMED	
19.	SPARE FOR ANY OTHER RELEVANT INFORMATION	
20.	ACKNOWLEDGEMENT	

SITUATION REPORTING SYSTEM (SITREP)

Incident Name:				Ref. No.
Priority	**Urgent**		**Immediate**	**Standard**
Final SITREP?	**Yes**	**No**	**Next SITREP on:**	
Date / Time				
POLREP Reference				
Incident	**Name**			
	Latitude	**Longitude**		
Brief Description of Incident and Impact				
Overall Weather conditions				
Summary of Response Actions to Date				
Current Strategies				

Summary of Resources Available/Deployed			
Expected Developments			
Other Information			
SITREP prepared by	**Name**		
	Agency		
	Role		
	Telephone		
	Mobile		
	Email		
Operation Section Chief	**Name (print)**		**Approved (signature)**

POLLUTION ASSISTANCE SYSTEM (POLAST)

INTRODUCTORY PART

ADDRESS	ORIGIN:
	DESTINATION:
DTG (Day Time Group)	
SERIAL NUMBER	

Part II Pollution Facilities (POLFAC)

1.	DATE AND TIME	
2.	REQUEST FOR ASSISTANCE	
3.	COST	
4.	PRE-ARRANGEMENTS FOR DELIVERY OF ASSISTANCE	
5.	TO WHERE ASSISTANCE SHOULD BE RENDERED AND HOW	
6.	NAMES OF OTHER STATES AND ORGANIZATIONS	
7.	CHANGE OF COMMAND	
8.	EXCHANGE OF INFORMATION	
9.	SPARE FOR ANY OTHER RELEVANT INFORMATION	
10.	ACKNOWLEDGE	

Appendix 20. Percentage Cover Chart

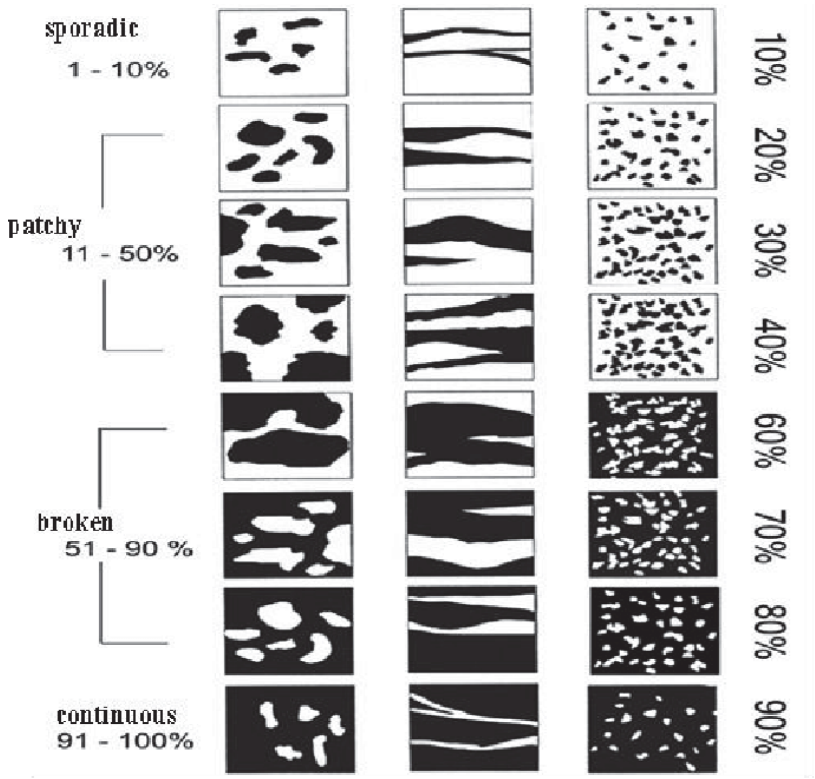
The below shows a method useful in estimating the amount of liquid pollution in a given area. Once the size of an area and the pollutant layer thickness have been estimated then along with an estimate of the percentage cover inside that area the volume can be estimated.

Examples: Area 1000m x 1000 m and 1mm thick = 100 lt if 10% coverage then 10lt

In the field, an individual observer may look at a slightly different area or perceive the percentage coverage differently (People with less experience tend to overestimate thickness and percentage cover) so where possible and for consistency the same observer should make all estimates on any day, flight, or survey. If more than one observer is present, then rather than reporting different values or an average reporting the range is potentially more useful.

Example: Observer 1-25%, Observer 2-35% Observer 3-28% for the same area. An average of 29% might appear to be accurate but as these are estimates reporting the range of 25% to 35% coverage gives a better picture of the real situation and reminds those receiving the reports that it is an estimate.

This method can be used to assess the percent coverage at sea or on shorelines.



Appendix 21: List of National and International Non-Governmental Organisations

Local Organisation

S.No	Organisation	Contact details
1	Mauritian Wildlife Foundation https://www.mauritian-wildlife.org/	Mauritan Wildlife Foundation Grannum Road, Vacoas, 73418 Tel : 697 6097 Fax : 697 6512 Email : executive@mauritian-wildlife.org
2	Marine Megafauna Conservation Organisation (MMCO) https://marinemegafaunaconservation.org/	Blue Water Divers Building 101, morcellement Mon Choisi Trou aux Biches, 22304 Tel :265 6700 Email : **info@marinemegafaunaconservation.org** **mmcomauritius@gmail.com** **biologist@marinemegafaunaconservation.org**
3	Eco Sud https://ecosud.mu/	106 Ave des Carangues Morcellement Blue Bay Republic of Mauritius Tel : : 6311994 Email : volunteer@ecosud.mu lagonbleu@ecosud.mu info@ecosud.mu
4	Savetheblu http://savetheblu.org/	Email: contact@savetheblu.org

International Organisations

S.No	Organisation	Contact details
1	International Union for Conservation of Nature https://iucn.org/	Rue Rue Mauverney 28 1196 Gland Switzerland Tel : +41 22 9990000 Fax: +41 22 9990002 Email : mail@iucn.org
2	World Wildlife Fund | (WWF) Endangered Species Conservation https://www.worldwildlife.org/	**World Wildlife Fund** 1250 24th St NW Washington, DC 20037 Tel : +1 202 293 4800 • **USA:** membership@worldwildlife.org • **Australia:** hello@wwf.org.au • **UK:** supportercare@wwf.org.uk

The list of experts that may be involved in the event of an oil spill is not limited to the above and would be populated as and when required.