ITOPF
PROMOTING EFFECTIVE SPILL RESPONSE

PRACTICAL ASPECTS OF A NOSCP

Andrew Le Masurier
Technical Adviser

GI WACAF Webinar

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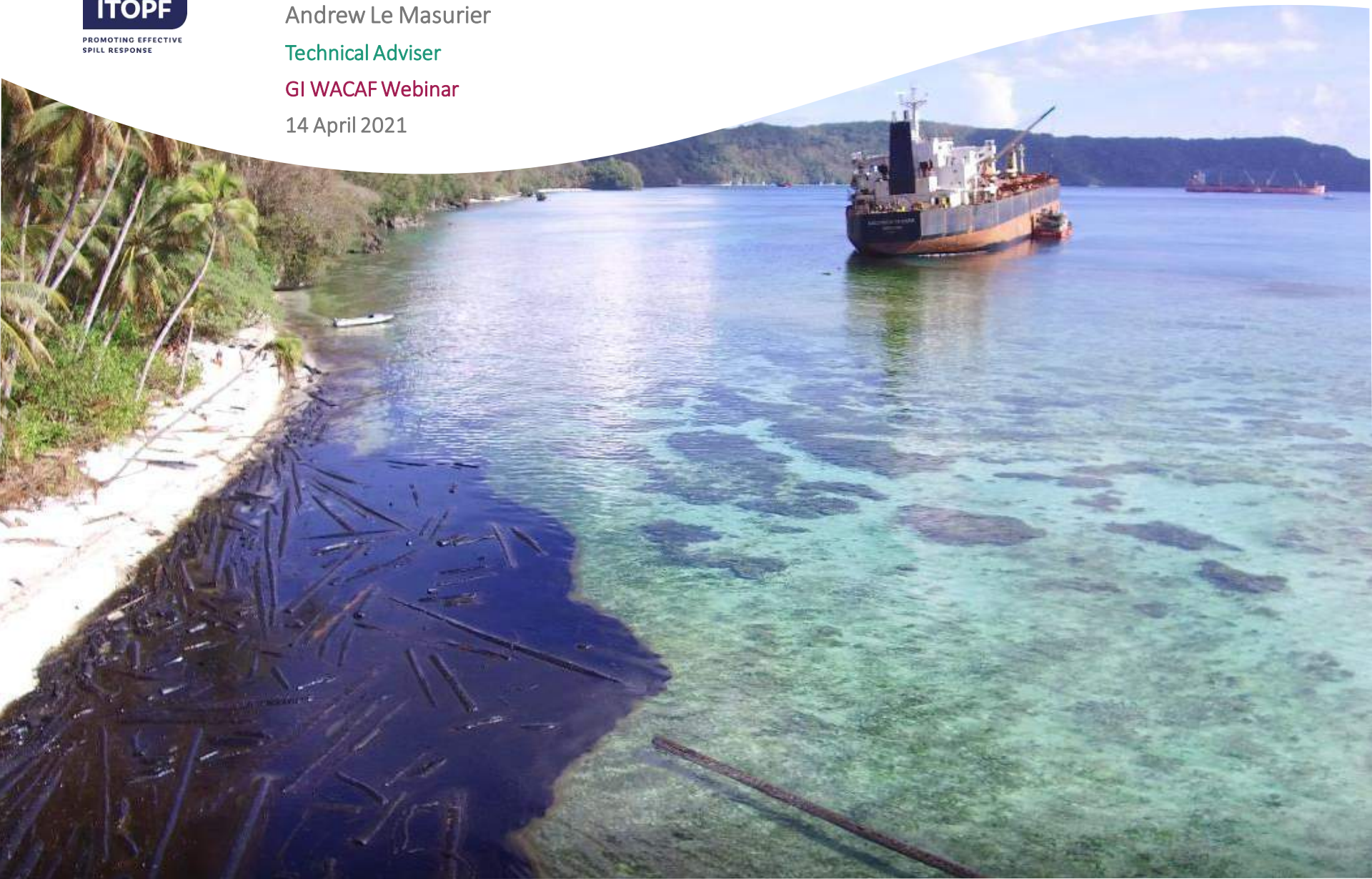


OUTLINE

- Who is ITOPF?
- Annexe Contents
- Co-operation with Oil Industry
- Specialist Expertise Capabilities
- Sensitivities
- Logistics
- Response Strategies
  - At-Sea Response
  - Shoreline Protection
  - Shoreline Clean-Up
- Waste Management
- Wildlife Response
- Training and Exercise

WHO IS ITOPF?

ITOPF is a not-for-profit, scientific advisory organisation based in London but active globally.

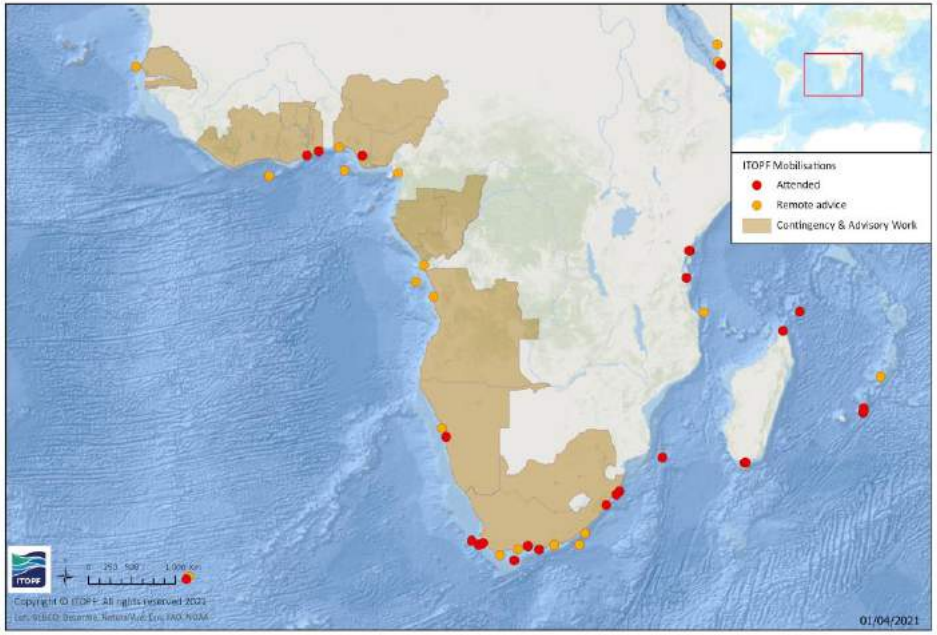
Technical services include:

ITOPF & GI WACAF

ITOPF has been working alongside the GI WACAF Project for 11 years.

ITOPF has attended multiple workshops and hosted table-top exercises in many GI WACAF countries in subjects such as:

- Oil spill preparedness and response
- Waste management
- International co-operation and legislation
- Wildlife response
- Aerial surveillance
- Shoreline clean-up



ANNEXE CONTENTS

- Contact details for relevant government authorities, response organisations and technical experts
- Inventory of available resources and contact details of operators
- Contact details of third-party suppliers of materials and services (PPE and waste contractors)
- Sensitivity mapping, shoreline types and priorities for protection
- Access routes and waste storage / disposal sites
- Guidelines for dispersant use in different areas
- Guidelines for use of preferred response techniques, including boom deployment plans
- Logistical support (e.g., accommodation, catering and security for workforce)
- Example forms for recording expenditure
- Sources of funding and compensation

CO-OPERATION WITH OIL INDUSTRY

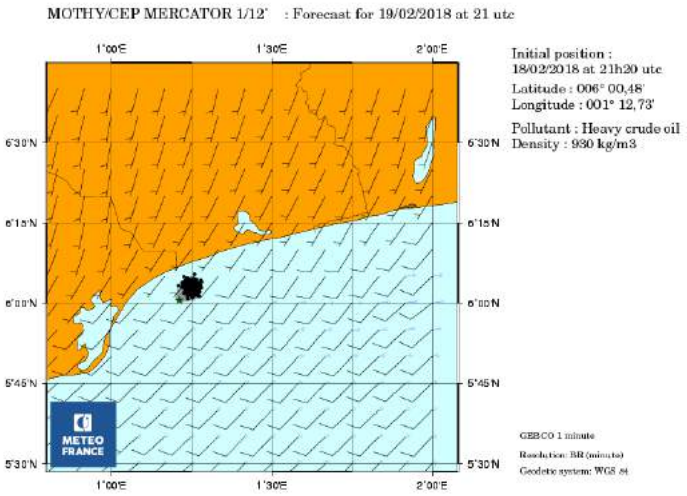
- Co-operation between all parties (government authorities, oil industry and technical experts) during planning and operational phase of NOSCP is crucial for a successful response
- List of oil industry's capabilities should be included in NOSCP
  - Oil spill response equipment stockpiles / availability
  - Non-specialist machinery availability (e.g., excavators, workforce)
- Compatibility between oil industry's contingency plan and the NOSCP should be sought
- Oil industry representatives should be present during training exercises to ensure that roles and responsibilities are understood
- Clarification of agreement should be sought for the provision of oil industry assets in the event of a spill not under their liability
- Agreed contractual terms for oil industry-owned equipment could be appended to NOSCP

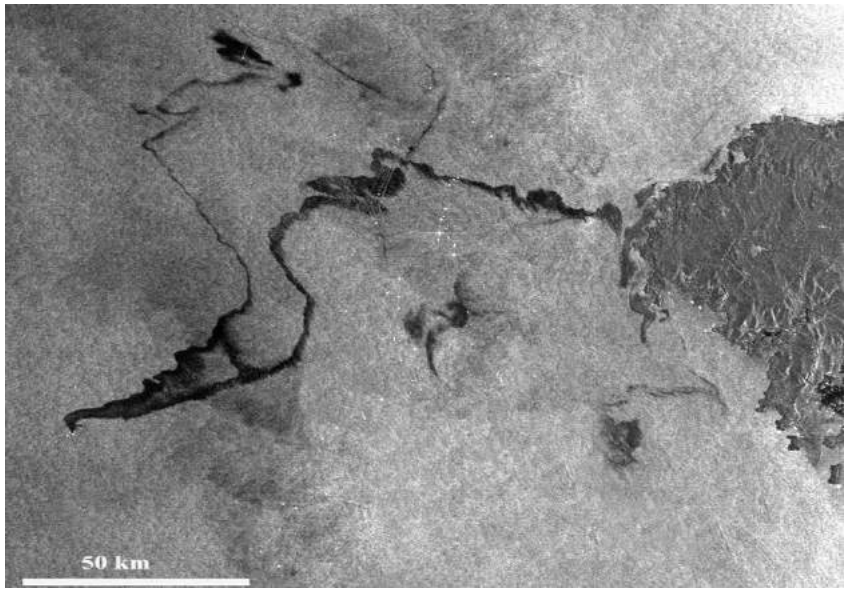
SPECIALIST EXPERTISE CAPABILITIES

- NOSCP should contain:
  - Trajectory modelling / remote sensing capabilities (e.g. WebGNOME, Sentinel)
  - Technical expertise available (e.g. consultants, specialist responders)

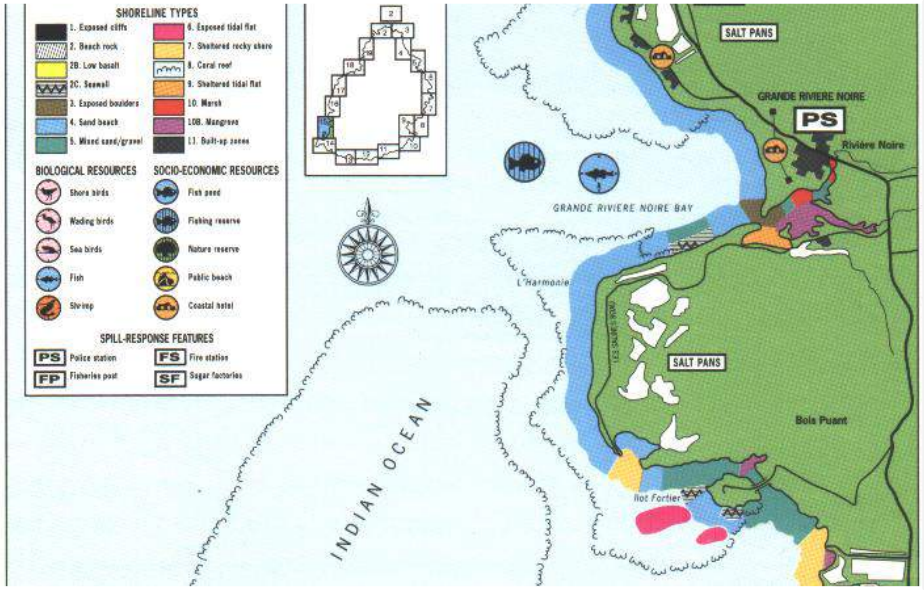
- The reader should be able to rapidly find list of expertise to contact in the event of an incident

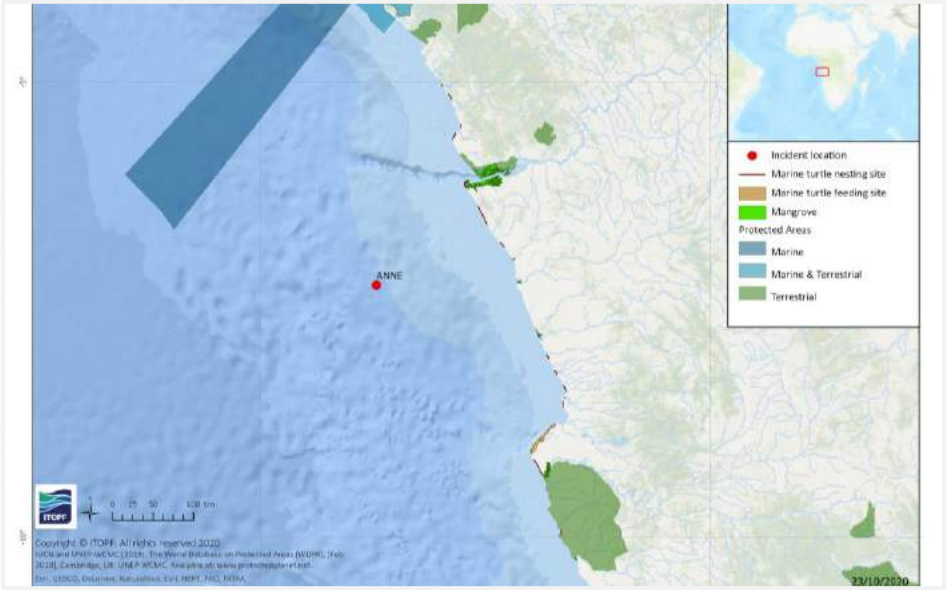
- Capabilities should be divided into:
  - National
  - Regional
  - International





SENSITIVITIES - MAPPING





- A NOSCP should contain maps with locations of different habitats/shoreline types/sensitive areas.
- Reader can quickly establish affected areas and appropriate measures to be taken
- Crucial to prioritising areas of high environmental and economic sensitivity
- If resources are limited – prioritisation is key
- Seasonal variation can greatly alter protection priorities

ACCESS TO SHORES

- Shoreline accessibility is crucial for responders
- Accessibility should be included in sensitivity mapping
- Big difference between theoretical and physical clean-up operations
- Shorelines inaccessible to machinery
- Presence of large logs on-shore preventing vehicular access (common in Gulf of Guinea)
- Hazardous shorelines for personnel to navigate

TYPES OF SUBSTRATE

Different types of substrate provide different clean-up challenges

ROCKY SHORE

- Difficult to access
- Mechanical equipment unable to assist
- Manual recovery of oil is primarily used

SANDY SHORE

- Easier to access with multiple entry points for vehicles and mechanical equipment

PORT

- Easily accessible with mechanical equipment usually already present

MANGROVE HABITATS

- Makes up a large area of African coastline
- Highly productive and biodiverse tropical soft-sediment habitat
- Mangroves should be designated as a **priority area** in NOSCP

Clean-up considerations

- Areas may be difficult to access – low bearing capacity of soft-sediment
- Use of machinery **not appropriate** for this shoreline type
- Potential for response to cause more damage than oil spill due to trampling and disturbance of the mangrove

ECONOMIC SENSITIVITIES - FISHING

- Important part of African economy and livelihoods
- Crucial areas that should be included in sensitivity mapping
- ‘No use zone’ for dispersants should be detailed in NOSCP in areas close to fisheries
- Authorities responsible for seafood safety should work through contingency arrangements, such as criteria under which fishing restrictions would be imposed / lifted

LOGISTICS



The NOSCP should contain the following logistical information:

- Marine assets available and mobilisation times
- List of relevant contractors available nationally
- List of equipment suppliers
  - Including non-oil spill response equipment (construction / agricultural machinery)
- Oil industry assets available
- International assets available (co-operation agreements)

RESPONSE STRATEGIES

- Dependent on phase/nature of the oil spill
- Dependent on type of oil spilled
- Should be divided into:
  - At-sea response – emergency phase
  - Shoreline protection – emergency phase
  - Shoreline clean-up – operational phase

AT-SEA RESPONSE – DISPERSANT APPLICATION & IN-SITU BURNING

Supporting information required in NOSCP

- Policies for dispersant use and in-situ burning
- List of permitted dispersants and availability
- Vessel / aerial application availability
- Weather conditions suitable for dispersant use

At-sea response linked with sensitivity mapping

- Reader should be able to quickly identify if spill is located in dispersant-permitted area
- If in sensitive environment – dispersant banned

Supporting information required for in-situ burning

- Type of oil suitable for in-situ burning
- Fire boom resources / stockpile availability

Limitations of at-sea response techniques need to be clearly stated in NOSCP

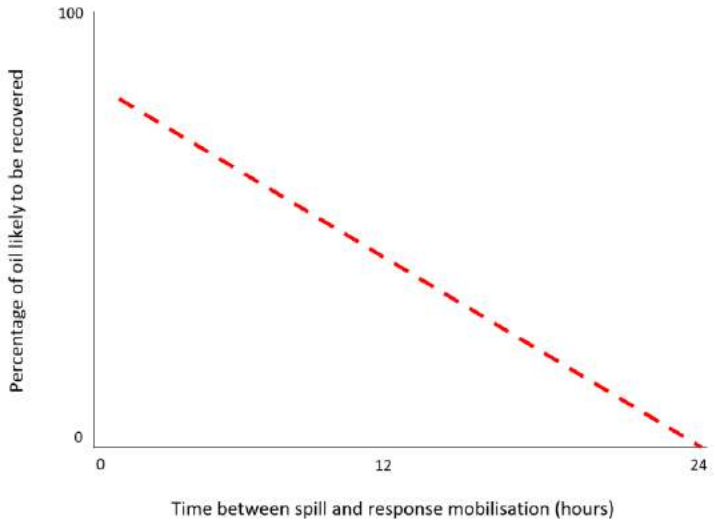
AT-SEA RESPONSE – CONTAINMENT & RECOVERY

Supporting information required in NOSCP

- Suitable type of oil
- Suitable weather conditions
- Oil spill response vessel availability
- Boom / skimmer equipment availability

Limitations need to be clearly stated in NOSCP

- Longer mobilisation time = increased spreading of oil and reduced containment efficacy



SHORELINE PROTECTION



- Unlikely that all the resources at risk can be defended successfully
- Essential to consider extent to which defence and protection of resource is practicable
- Deployment plan is required for each boom to ensure rapid sealing off of priority areas
- Regular training/exercises are essential for testing speed and efficacy of boom deployment plan
- Supporting information required for shoreline protection planning:
  - Boom stockpiles available / condition / location
  - Boom deployment plans
  - Weather conditions in which boom deployment would be ineffective

SHORELINE CLEAN-UP

Step 1: Shoreline surveys to gather information

- Aerial surveillance / boat surveys / ground truthing on shoreline undertaken
- Identify oil extent / characteristics / shoreline type / access issues

Step 2: Prioritisation of sites / trade offs

- Priority areas should be easily accessible from sensitivity map within NOSCP
- Seasonal variability of priorities taking into account

Step 3: Selection of clean-up techniques

- Dependent on substrate type / access issues
- Contact details for clean-up personnel (government / army / fire brigade / local manpower)
- List of PPE providers and logistics of PPE distribution to workforce

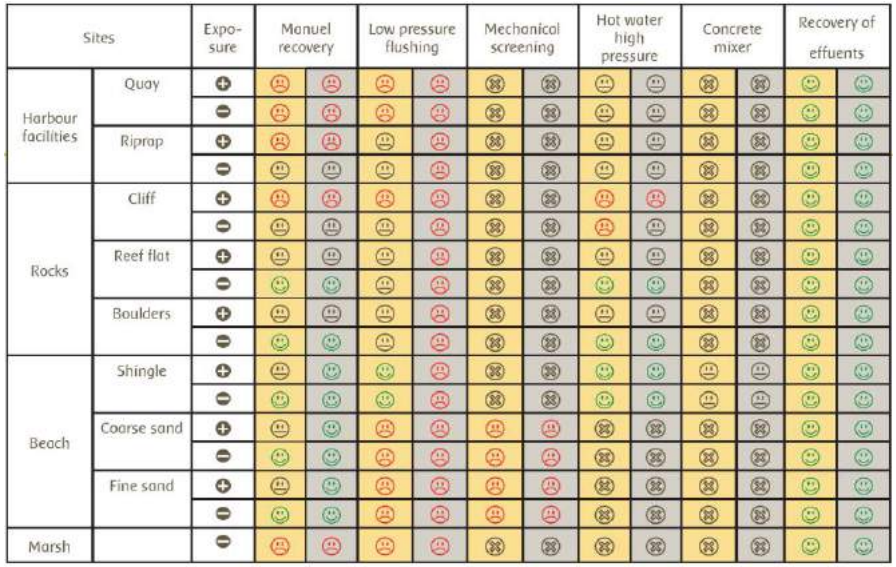
Step 4: Execution of operations

- Delineation of shoreline into sections and division of workforce into teams
- **Phase 1**: bulk / mobile oil removal
- **Phase 2**: buried / residual oil removal

Step 5: Re-assessment and termination

- Endpoints established at the beginning of the clean-up
- Surveys with relevant parties to agree on termination of clean-up operations

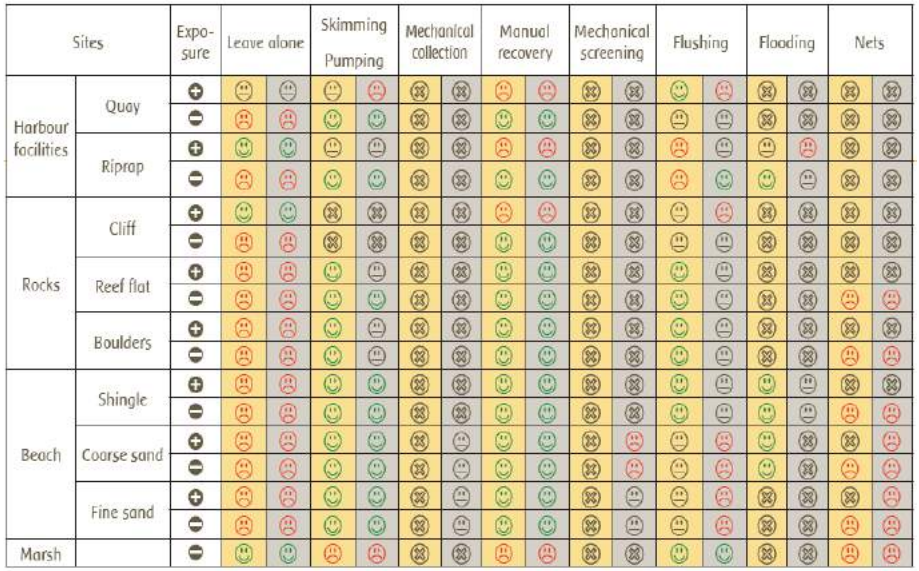
SHORELINE CLEAN-UP TECHNIQUES



Sites		Expo-sure	Manuel recovery		Low pressure flushing		Mechanical screening		Hot water high pressure		Concrete mixer		Recovery of effuents	
Harbour facilities	Quay	⊕	😟	😟	😟	😟	⊗	⊗	😐	😐	⊗	⊗	🙂	🙂
		⊖	😟	😟	😟	😟	⊗	⊗	😐	😐	⊗	⊗	🙂	🙂
	Riprap	⊕	😟	😟	😐	😟	⊗	⊗	😐	😐	⊗	⊗	🙂	🙂
		⊖	😐	😐	😐	😟	⊗	⊗	😐	😐	⊗	⊗	🙂	🙂
Rocks	Cliff	⊕	😟	😟	😟	😟	⊗	⊗	😟	😟	⊗	⊗	🙂	🙂
		⊖	😐	😐	😐	😟	⊗	⊗	😟	😐	⊗	⊗	🙂	🙂
	Reef flat	⊕	😐	😐	😐	😟	⊗	⊗	😐	😐	⊗	⊗	🙂	🙂
		⊖	🙂	🙂	😐	😟	⊗	⊗	🙂	🙂	⊗	⊗	🙂	🙂
	Boulders	⊕	😐	😐	😐	😟	⊗	⊗	😐	😐	⊗	⊗	🙂	🙂
		⊖	🙂	🙂	😐	😟	⊗	⊗	🙂	🙂	⊗	⊗	🙂	🙂
Beach	Shingle	⊕	😐	🙂	🙂	😟	⊗	⊗	🙂	🙂	😐	😐	🙂	🙂
		⊖	🙂	🙂	🙂	😟	⊗	⊗	🙂	🙂	😐	😐	🙂	🙂
	Coarse sand	⊕	😐	🙂	😟	😟	😟	😟	⊗	⊗	⊗	⊗	🙂	🙂
		⊖	🙂	🙂	😟	😟	😟	😟	⊗	⊗	⊗	⊗	🙂	🙂
	Fine sand	⊕	😐	🙂	😟	😟	😟	😟	⊗	⊗	⊗	⊗	🙂	🙂
		⊖	🙂	🙂	😟	😟	😟	😟	⊗	⊗	⊗	⊗	🙂	🙂
Marsh		⊖	😟	😟	😟	😟	⊗	⊗	⊗	⊗	⊗	⊗	🙂	🙂

🙂 to be given priority consideration
😐 may be useful
😟 to be considered under certain conditions
⊗ inappropriate
fluid to slightly viscous oil
viscous to highly viscous oil

Initial clean-up techniques



Sites		Expo-sure	Leave alone		Skimming Pumping		Mechanical collection		Manual recovery		Mechanical screening		Flushing		Flooding		Nets	
Harbour facilities	Quay	⊕	😐	😐	🙂	😟	⊗	⊗	😟	😟	⊗	⊗	🙂	😟	⊗	⊗	⊗	⊗
		⊖	😟	😟	🙂	🙂	⊗	⊗	🙂	🙂	⊗	⊗	😐	😐	⊗	⊗	⊗	⊗
	Riprap	⊕	🙂	🙂	😐	😐	⊗	⊗	⊗	⊗	⊗	⊗	😟	😐	😐	😟	⊗	⊗
		⊖	😟	😟	🙂	🙂	⊗	⊗	🙂	🙂	⊗	⊗	😟	🙂	🙂	😐	⊗	⊗
Rocks	Cliff	⊕	🙂	🙂	⊗	⊗	⊗	⊗	😟	😟	⊗	⊗	🙂	😟	⊗	⊗	⊗	⊗
		⊖	😟	😟	⊗	⊗	⊗	⊗	🙂	🙂	⊗	⊗	😐	😐	⊗	⊗	⊗	⊗
	Reef flat	⊕	😟	😟	🙂	😐	⊗	⊗	🙂	🙂	⊗	⊗	🙂	😐	⊗	⊗	⊗	⊗
		⊖	😟	😟	🙂	🙂	⊗	⊗	🙂	🙂	⊗	⊗	😐	😐	⊗	⊗	😟	😟
	Boulders	⊕	😟	😟	🙂	😐	⊗	⊗	🙂	🙂	⊗	⊗	🙂	😐	⊗	⊗	⊗	⊗
		⊖	😟	😟	🙂	😐	⊗	⊗	🙂	🙂	⊗	⊗	😐	😐	⊗	⊗	😟	😟
Beach	Shingle	⊕	😟	😟	🙂	🙂	⊗	⊗	🙂	🙂	⊗	⊗	🙂	😐	🙂	😐	⊗	⊗
		⊖	😟	😟	🙂	🙂	⊗	⊗	🙂	🙂	⊗	⊗	😐	😐	🙂	😐	😟	😟
	Coarse sand	⊕	😟	😟	🙂	🙂	⊗	😐	🙂	🙂	⊗	😟	😐	😟	🙂	⊗	⊗	😟
		⊖	😟	😟	🙂	🙂	⊗	😐	🙂	🙂	⊗	😟	😐	😟	🙂	⊗	😟	😟
	Fine sand	⊕	😟	😟	🙂	🙂	⊗	😐	🙂	🙂	⊗	😐	😐	😟	⊗	⊗	⊗	😟
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Marsh		⊖	🙂	🙂	😟	😟	⊗	⊗	😟	😟	⊗	⊗	🙂	🙂	⊗	⊗	😟	😟

🙂 to be given priority consideration
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Final clean-up techniques

Source: CEDRE

Simple but effective matrix to predict most effective clean-up techniques by shoreline type

Allows the reader to quickly assess what clean-up methods can be used according to the substrate type

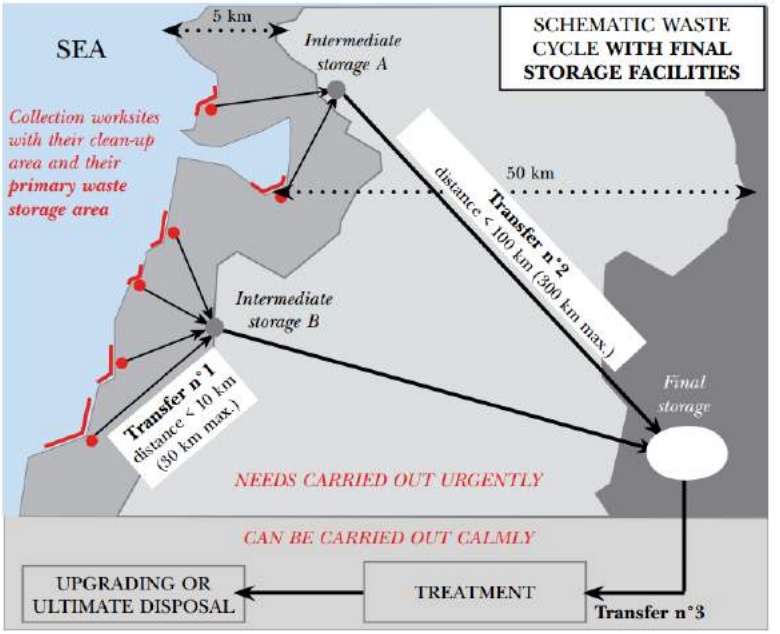
WASTE MANAGEMENT

Waste logistics

- Initial storage / segregation of waste streams
- Licensed waste transporters procured
- Intermediate and final storage areas identified

Waste treatment / disposal / reuse

- Licensed waste treatment sites identified
- Environmental and legal considerations for waste reuse / recycling
- Different disposal routes per waste streams



Source: Oil spill waste management operational guide

WILDLIFE RESPONSE



- A wildlife response plan should be incorporated into the NOSCP
  - Euthanasia – routinely undertaken to reduce suffering by some countries
  - Rehabilitation – capture, cleaning, treatment and release undertaken by other countries
- NOSCPs should contain contact details for vets / specialist care organisations as well as regional and international assistance
- At local level, existing/potential treatment centres should be identified
- Contact details for suppliers of equipment and feed should be included

TRAINING & EXERCISE


- A timetable for training and exercises needs to be set out in the NOSCP

- Training programmes should be for:
  - Marine response teams
  - Shoreline response teams
  - Interested parties

- Regular and realistic exercises:
  - Ensure contingency arrangements function properly
  - Test roles and responsibilities to ensure they are understood
  - Assess equipment's availability and performance
  - Ensure contact details are up to date

Thank you for listening – any questions?

Andrew Le Masurier
Technical Adviser