POSOW

Preparedness for Oil-polluted Shoreline cleanup and Oiled Wildlife interventions

Oiled shoreline assessment

POSOW is a project co-financed by EU under the Civil Protection Financial Instrument developed in cooperation with ISPRA, *Cedre*, Sea Alarm and CPMR and coordinated By REMPEC a regional Centre of the Barcelona Convention

Objectives of the training

To provide volunteers with the basic knowledge and methods needed to undertake shoreline assessment to provide key information to authorities during the first or “reactive” phase of the response.

Information presented can be found in details in the POSOW manual « Oiled Shoreline Assessment »

Contents of the presentation

1. Oiled shoreline assessment
   - Definition
   - Objectives
2. Methodology
   - Principles
   - How to prepare the survey
   - How to perform the survey
3. How to complete the assessment form

1 Oiled shoreline assessment : definition and objectives

A shoreline assessment is a ground survey of an affected area

The objective is to provide :

- rapid but exhaustive overview of shoreline oiling conditions
- Accurate, systematic, georeferenced information

Using standardized methods and terminology to provide comparable data

1 Definition and objectives of oiled shoreline assessment

The data and information generated by the assessment are crucial for authorities to take the right decisions :

- By defining the regional scale and scope of the oiling
- By helping to answer questions, such as:
  - what are shoreline protection priorities ?
  - is there potential remobilisation that needs a quick response ?
  - where are the priorities of response ?
  - what are appropriated equipment and techniques to select ?

2 Methodology of oiled shoreline assessment

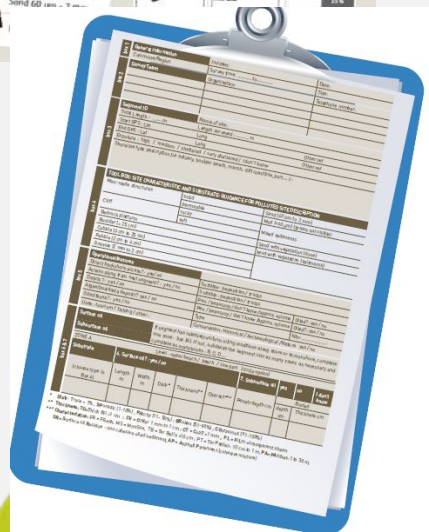
Fundamental principles include:

- a division of the coastline into homogeneous geographic units or ‘segments’
- the use of a standard set of terms and definitions
- systematic assessment of all shorelines in the affected area
- a survey team that is objective and trained
- the timely provision of data and information for decision making and planning.

2 Methodology of oiled shoreline assessment

How to prepare the survey :

- read the manual and make copies of:
  - supporting documentation



  - the "assessment form" (several ones!)

2 Methodology of oiled shoreline assessment

How to prepare the survey :

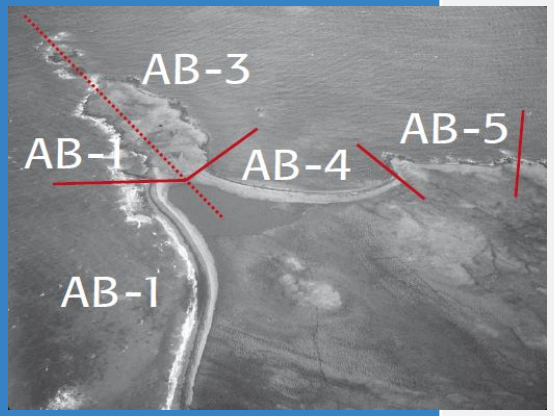
request from the Command Centre:

- map and /or Google views copies of the shoreline at an appropriate scale for ground survey
- which shoreline segments you have been allocated
- identification references of the segments if it exists or prepare it if not*

check itinerary and access to the sites

*Segmentation of coastline definition and methodology to prepare it

'segments' are planning and operational units in which shoreline character is relatively homogeneous (uniform) in terms of physical features and sediment type



The first step of a ground survey is to divide the coastline in segments

Boundaries between segments are established on the basis of prominent geological features (headland, river, changes in shoreline or substrate type)

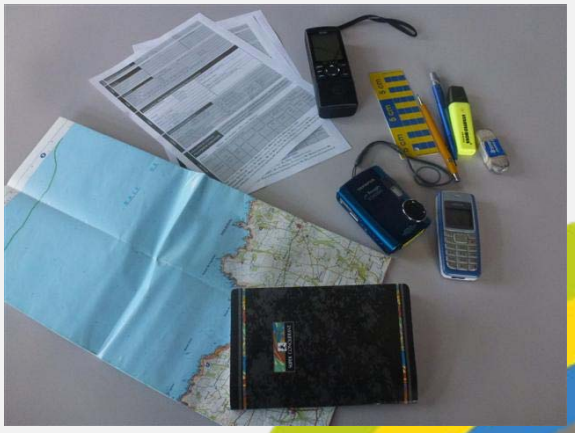
Segment lengths are typically 200 - 2,000m

Each segment should be given a unique identification code

2 Methodology of oiled shoreline assessment

How to prepare the survey :

- Check you have not forgotten any equipment
  - GPS, camera, notebook and pencil
  - telephone/smartphone, shovel
  - appropriate clothing, boots, protective clothes if the shore is heavily oiled
  - food and refreshments



2 Methodology of oiled shoreline assessment

How to perform the survey :

1.for a small segment, get an overall perspective of it before starting to fill in the form

2.for a wide segment, start to fill in the form as you progress along the segment

3.start detailed observations and completion of the assessment form

4.take photos* to document shore and oil appearance

5.draw one sketch of the whole segment or of specific areas

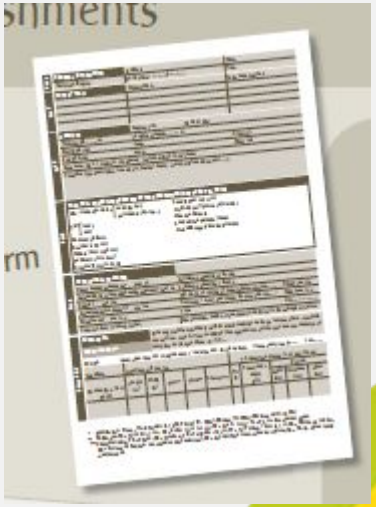
6.check you have not forgotten any information

*Taking photos to document shore and oil appearance

1. To help you, take a photo of your notebook with the name of the site and segment ID
2. Take a global view including key features of the shoreline
3. Take closer views with a scale if the size of the picture is not obvious (don't forget to place the **Photo scale)**
4. Indicate the location of the view point on your sketch

3 How to complete the assessment form

- the Assessment Form is a double-sided paper
- It is supported by a sketch, photographs and video as appropriate
- the Form comprises eight elements called "Boxes“
- Fill in with required information or circle options



3 How to complete the assessment form

- Box 1 General information
- Box 2 Survey team

box 1	**General information**	Incident: *Nobiga*	*Date: 09/01/12*
	Commune/Region	Survey time: *10:00 to 11:15*	Tide:
box 2	**Survey Team**	Organisation:	Telephone number:
	John Tullow	*Environment Ministry*	*+12 345 6789*
	Jose Ballesteros	*Municipality*	*+12 456 7891*

  - general information is important for data archiving and further uses
  - authors identification is important if further clarifications are needed

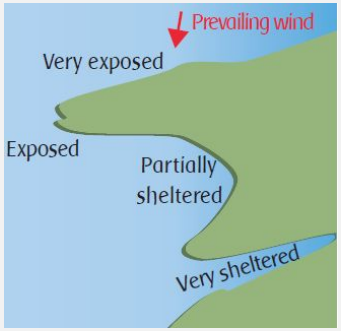
3 How to complete the assessment form

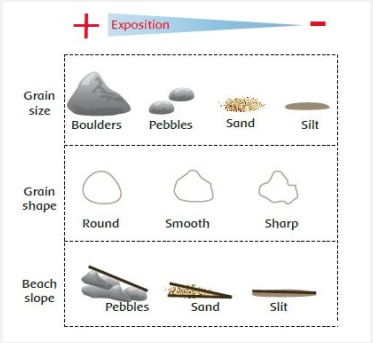
- **Box 3 Site and segment details**

box 3

Segment ID	Name of site: *Ramla bay*		
Total Length : *600 m*	Length surveyed : *600 m*		
Start GPS : Lat *36°03'41.58»N*	Long *14°17'03.00»E*		Other ref
End GPS : Lat *35°46'08.02"N*	Long *14°36'09.80"E*		Other ref
Exposure : high / (medium) / sheltered / very sheltered / I don't know			
Coastline type description (i.e estuary, boulder beach, marsh, cliff coastline, port.....) : *Coastline - Sandy beach and dunes between rocky headlands*			

– Wave exposure = approximate overall exposure rating of the upper shore of the segment





shape of sediment is a good indicator of exposure

– Coastline type description = describe in few words the main geographical features of the coastline

2 Methodology of oiled shoreline assessment

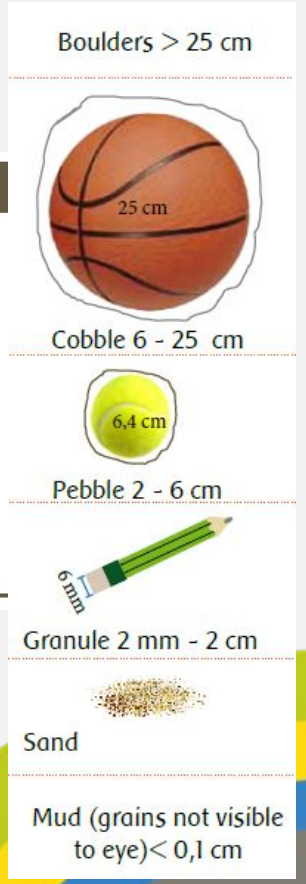
- Box 4 Shoreline substrate type

The list of different substrates is a guidance to help you fill in “Box 6” on oiling conditions. You are not expected to fill in “Box 4”

box 4

TOOL BOX: SHORELINE SUBSTRATE TYPE DESCRIPTION (NOT TO BE FILLED IN)

- Man-made structures
  - solid (quay...)
  - permeable (rip-rap...)
- Cliff
  - rocky
  - soft
- Bedrock platform
- Boulder (> 25 cm)
- Cobble (6 cm to 25 cm)
- Pebble (2 cm to 6 cm)
- Granule (2 mm to 2 cm)
- Sand (60 µm to 2 mm)
- Mud (<60 µm) (grains not visible)
- Mixed sediments
- Sand with vegetation (dune)
- Mud with vegetation (saltmarsh)



Nature of substrate and size of grain will influence oil behaviour and choice of cleanup techniques

3 How to complete the assessment form

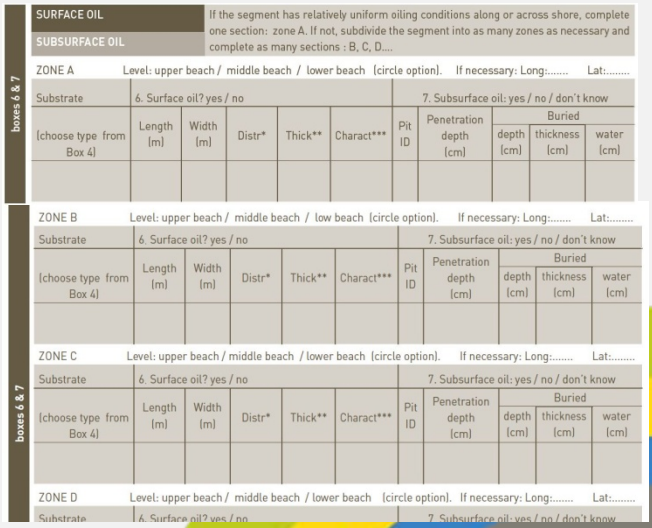
- Box 5 Operational features

box 5	Operational features		
	Direct backshore access?: yes/no	Suitable: pedestrian /trucks	
	Access along from next segment? : yes/no	Suitable : pedestrian /trucks	
	Debris ?: yes /no	Not much/a lot/don't know/approx. volume	Oiled?: yes/no
	Algae/posidonia deposit? yes/no	Not much /a lot/don't know/approx. volume	Oiled?: yes /no
	Oiled fauna?: yes/no	Type	Nbr: .....
	Uses : tourism/fishing /other :	Conservation: Historical /Archaeological/Nature yes / no	

- Important to define viable logistical options
- for any useful complementary information (private property, locked gates etc..) use Box 8 "General comments"

3 How to complete the assessment form

- Box 6 and 7 Surface and Subsurface oiling
- The most important element (location, consistency and volume of oil*)
- If segment has relatively uniform oiling conditions along shore or across shore ➞ complete one box: zone A
- If not ➞ subdivide the segment into as many zones as necessary, give each Zone an ID (A, B, C...) and complete as many boxes: A, B, C, D
- In the form, 4 zones boxes are pre-defined, if you need more, use an additional paper sheet



boxes 6 & 7

SURFACE OIL
SUBSURFACE OIL

If the segment has relatively uniform oiling conditions along or across shore, complete one section: zone A. If not, subdivide the segment into as many zones as necessary and complete as many sections : B, C, D....

ZONE A Level: upper beach / middle beach / lower beach (circle option). If necessary: Long:..... Lat:.....

Substrate	6. Surface oil? yes / no						7. Subsurface oil: yes / no / don't know			
(choose type from Box 4)	Length (m)	Width (m)	Distr*	Thick**	Charact***	Pit ID	Penetration depth (cm)	Buried depth (cm)	Buried thickness (cm)	Buried water (cm)

ZONE B Level: upper beach / middle beach / low beach (circle option). If necessary: Long:..... Lat:.....

Substrate	6. Surface oil? yes / no						7. Subsurface oil: yes / no / don't know			
(choose type from Box 4)	Length (m)	Width (m)	Distr*	Thick**	Charact***	Pit ID	Penetration depth (cm)	Buried depth (cm)	Buried thickness (cm)	Buried water (cm)

ZONE C Level: upper beach / middle beach / lower beach (circle option). If necessary: Long:..... Lat:.....

Substrate	6. Surface oil? yes / no						7. Subsurface oil: yes / no / don't know			
(choose type from Box 4)	Length (m)	Width (m)	Distr*	Thick**	Charact***	Pit ID	Penetration depth (cm)	Buried depth (cm)	Buried thickness (cm)	Buried water (cm)

ZONE D Level: upper beach / middle beach / lower beach (circle option). If necessary: Long:..... Lat:.....

Substrate 6. Surface oil? yes / no 7. Subsurface oil: yes / no / don't know

* Volume of oil = Length x Width x Distribution x Thickness

3 How to complete the assessment form

- Box 6 and 7 Surface and Subsurface oiling

boxes 6 & 7

SURFACE OIL	If the segment has relatively uniform oiling conditions along or across shore, complete one section: zone A. If not, subdivide the segment into as many zones as necessary and complete as many sections : B, C, D....
SUBSURFACE OIL	

ZONE A Level: upper beach / middle beach / lower beach (circle option). If necessary: Long:..... Lat:.....

Substrate	6. Surface oil? yes / no					7. Subsurface oil: yes / no / don't know				
								Buried		
(choose type from Box 4)	Length (m)	Width (m)	Distr*	Thick**	Charact***	Pit ID	Penetration depth (cm)	depth (cm)	thickness (cm)	water (cm)

* **Distr**ibution: **Tr**ace < 1%; **SP**oradic (1-10%); **PA**tchy (11- 50%); **BR**oken (51-90%); **CO**ntinuous (91-100%)
** **Thick**ness: **TO** = **T**hick **O**il >1 cm; **CV** = **C**o**V**er 1 mm to 1 cm; **CT** = **C**oa**T** <1 mm; **FL** = **F**i**L**m = transparent sheen
*** **Charact**eristics: **FR** = **FR**esh; **MS** = **M**ou**S**se; **TB** = **T**ar **B**alls <10 cm; **PT** = Tar **P**atties: 10 cm to 1 m; **PA** = **PA**tches:1 to 30 m; **SR** = **S**urface oil **R**esidue: non cohesive oiled sediment; **AP** = **A**sphalt **P**avement: cohesive mixture; **TA** = **TA**rry: almost solid weathered oil.

This most important element of the assessment requires some quantitative measurement of oiled zones, using the descriptive terminology widely recognized

3 How to complete the assessment form

- Box 6 and 7 Surface and Subsurface oiling

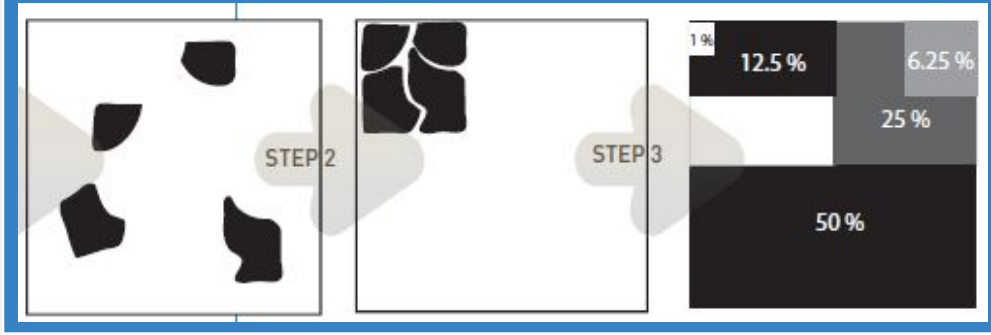
Visual aid has been elaborated and can be copied from the manual on oiled Shoreline assessment :

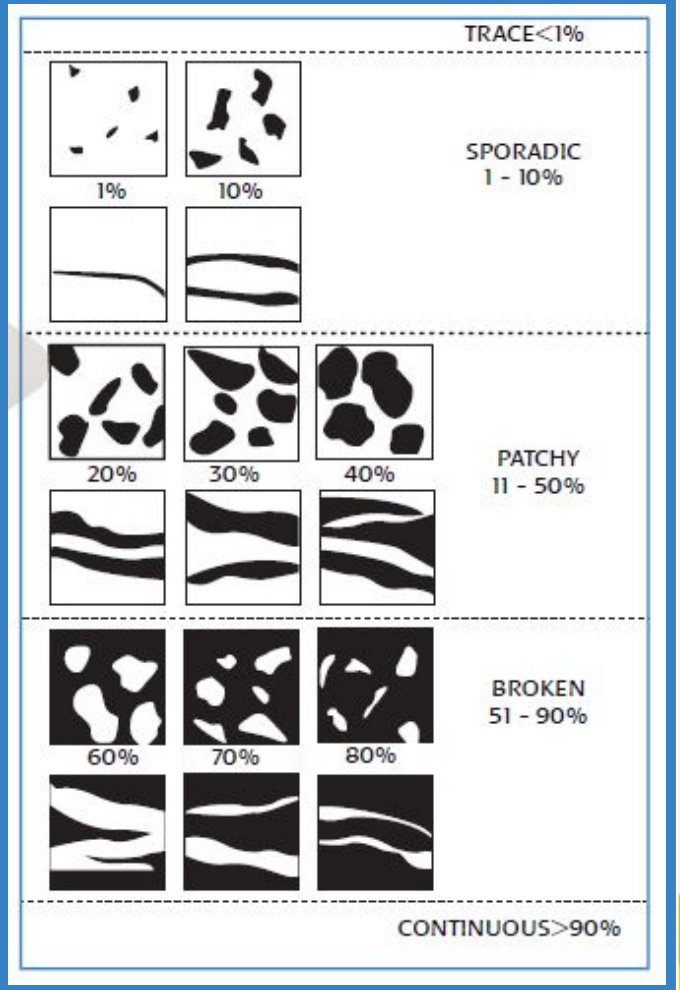
- technique for estimating the distribution of pollution
- photographic guide to oiling thickness
- photographic guide to oiling character

Visual aid and technique for estimating the distribution of pollution

To reach an acceptable estimation of the percentage of oil coverage:

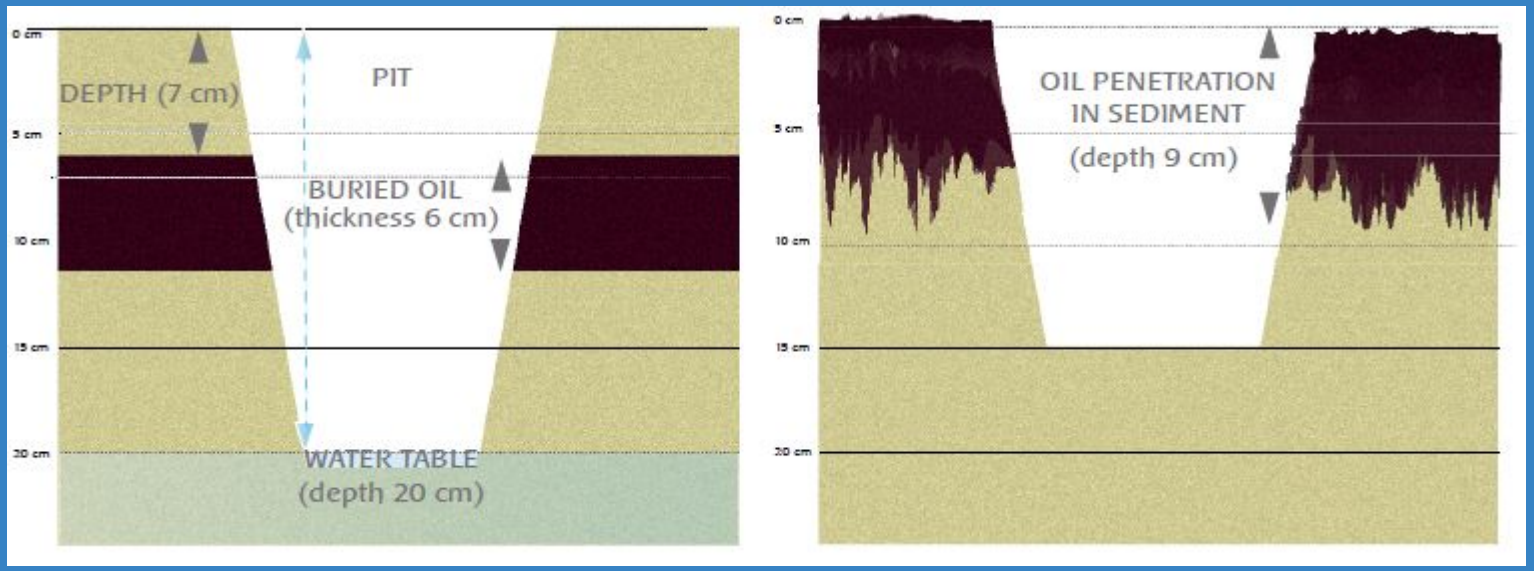
- **step 1:** choose one or more representative zone with homogenous oil cover or deposit.
- **step 2:** draw one square meter (or more if needed) and imagine that you collect all the oil to make a continuous oiled area in your quadrat
- **step 3:** estimate the percentage coverage using the visual aid below and beside





Visual aid

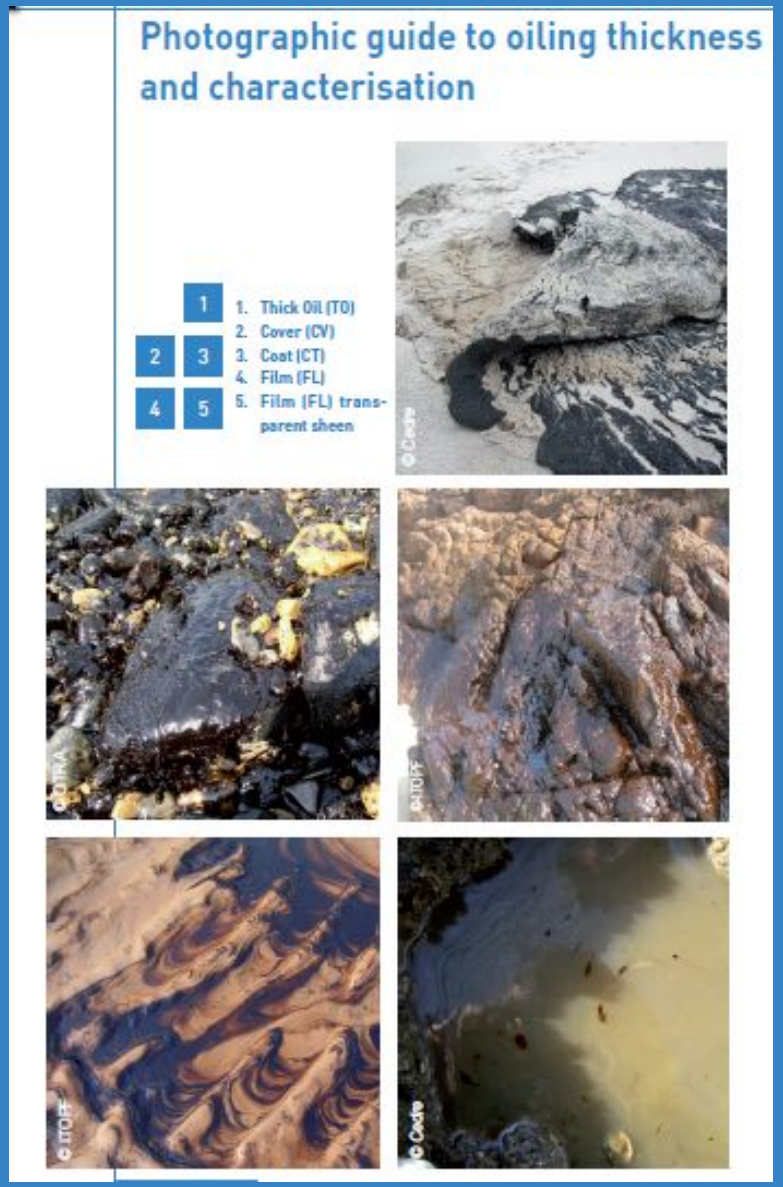
Subsurface oiling characterization



Buried layer

Penetration of oil in sediment

Visual aid for oiling thickness



Visual aid for oiling character

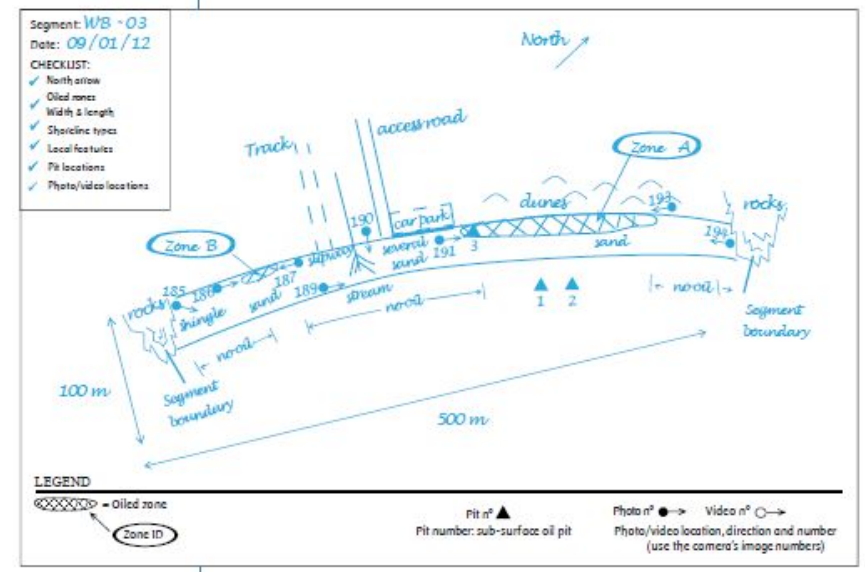
3 How to complete the assessment form

- Box 8 General comments and Sketch

box 8

GENERAL COMMENTS / SKETCH

- Flock of about twenty seagulls observed on rocks at east end of segment. Two birds appeared to be oiled on their bellies. Report made to Wildlife Branch.
- Small number of public using the beach, mainly walking dogs. Advised them to avoid use of beach due to risk of oil contamination of footwear and pets.
- largest patch (Zone A) estimated to contain about 2.5 cubic meters of stranded oil.



Provide any additional useful information

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