

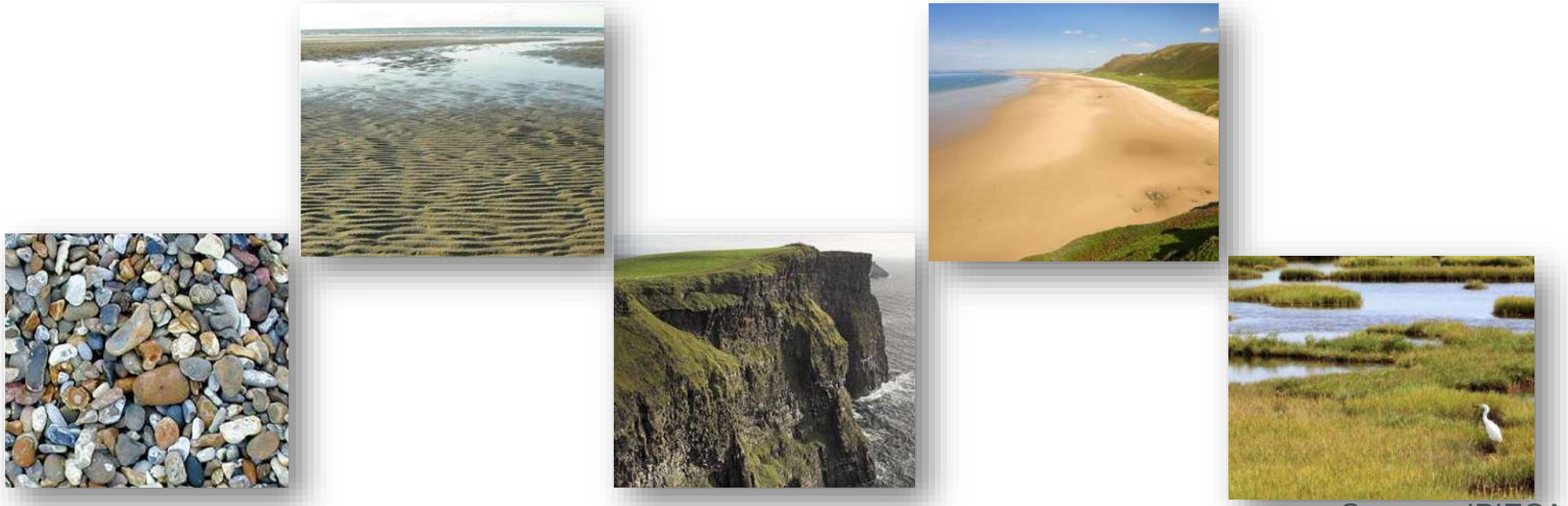
# OIL SPILL RESPONSE LTD (OSRL)

## Shoreline Clean-up

Oil Spill Response

# Shoreline Impacts

- Many different types of shoreline
- Different environmental conditions lead to different species which leads to varying levels of sensitivity
- Differing shorelines require differing clean-up techniques



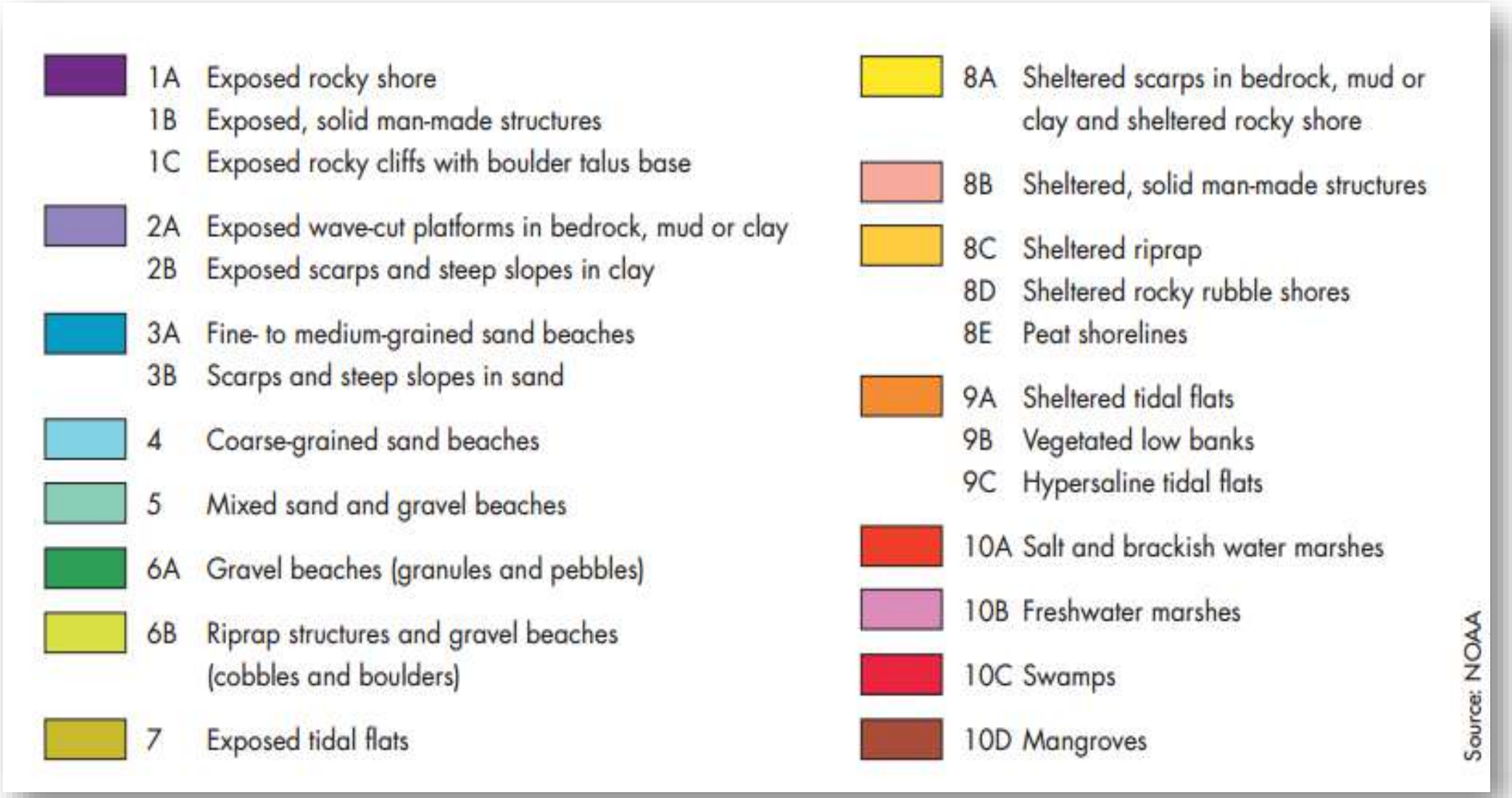
Sources: IPIECA

# Shoreline Types & Sensitivities






# Environmental Sensitivity Index



# Shoreline Impacts

## Rocky Shore (1A)

- Shoreline split into zones dependant upon exposure
- Different species can tolerate different exposure levels

## Sandy Shore (3A or 4)

- Not as obviously as other shorelines
- Burrowing organisms
- Oil may filter down into the sediment

# Shoreline Impacts

## Tidal Flats (9A, 9C)

- Very sensitive
- Support a vast number of plant and animal species
- Substrate easily eroded
- Mangroves or other vegetation may grow in the upper intertidal zone

## Mangrove (10D)

- Very sensitive
- Provide habitat for wide variety of organisms
- Oil impacts trees by smothering roots

# What are the goals of a shoreline clean-up response?

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- To accelerate natural recovery
- Minimise the impact of the clean up operations

# SHORELINE TREATMENT

Oil Spill Response

# What can we do if we know there is going to be a shoreline impact?

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Shoreline before and after preimpact debris removal

# Shoreline response – three Stages

Stage 1 – Gross contamination removal – Emergency Stage

- Recovery of oil floating against the shoreline and bulk, pooled oil ashore

Stage 2 – Removal of moderate to heavy contamination - Project Stage

- Removal of stranded oil and oiled sediment

Stage 3 – Final treatment - Polishing Stage

- Final clean up of light contamination and oil stains
- Clean to the “end point”

# STAGE 1

Emergency Stage – Gross contamination removal

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# Stage 1 – Gross contamination removal

## Why do we recover oil that is floating against the shoreline?

- Stop it contaminating new sections of coast
- Large areas of oil stranded in the tide line will refloat on the next incoming tide and may move to other areas.

# Stage 1 – oil removal options

- Methods are available for Stage 1

Booms & skimmers

Mechanical recovery

Manual recovery

# Stage 1 – booms and skimmers

## Advantages

- Efficient - recovered waste should have a high proportion of oil
- Relatively small workforce required
- Prevents the oil migrating to additional areas of shoreline

## Disadvantages

- Requires trained responders
- Requires specialist equipment
- Limited by weather

# Stage 1 – mechanical recovery

## Advantages

- Rapid removal of large volumes of oil and contaminated sediment
- Uses readily-available equipment
- Small workforce

## Disadvantages

- Requires good access points
- Generates large quantities of lightly oiled waste
- Can remove significant volumes of substrate – erosion issues
- Environmental impact
- Applicable to few shoreline types

# Stage 1 – manual recovery

## Advantages

- More selective than mechanical recovery – less sediment removed
- Can utilise non-specialist local workforce (with supervision)
- Appropriate for more sensitive shoreline types i.e. mangroves

## Disadvantages

- Large workforce required
- Manual handling issues
- Duty of care to workers

# STAGE 2

Project Stage – Removal of moderate to heavy contamination

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# Stage 2 - High Volume Low Pressure flushing

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# Stage 2 – Surface and Subsurface oil removal

# Stage 2 – Surf Washing

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## Just 3 weeks later

- Minimal oiled waste
- Beach profile unaltered
- Reduced labour required

NEBA is an important consideration

# STAGE 3

Polishing Stage – Final treatment

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# Stage 3 – Polishing Stage

- Final polish
- Removal of equipment
- Replacement of materials if required


# Things to avoid during a shoreline response

- Sterilising
- Over-cleaning

# Shoreline Considerations

- Site Set up (Hot, Warm and Cold Zones)
  - Decontamination
  - Equipment lay down areas
  - Security
  - Rest facilities etc.
- Waste Management
- Transport (Personnel, Equipment and Waste)
- PPE
- Safety Training / Risk Assessment

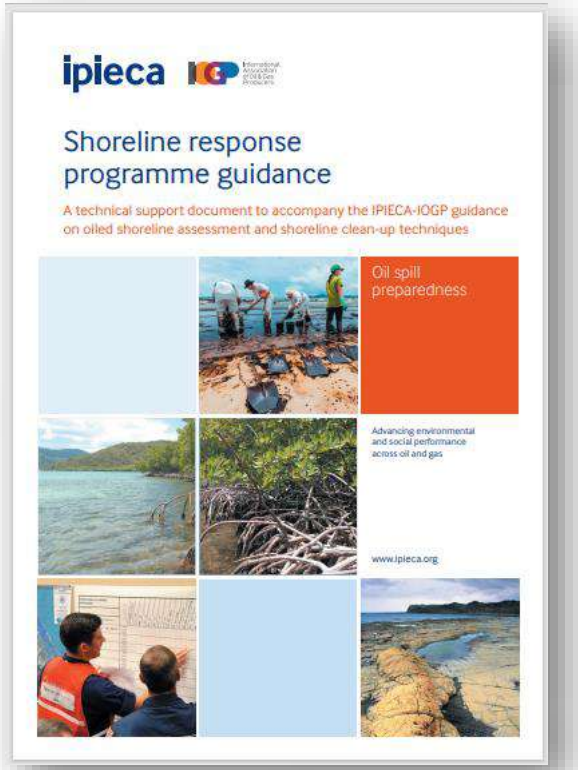
# Summary:

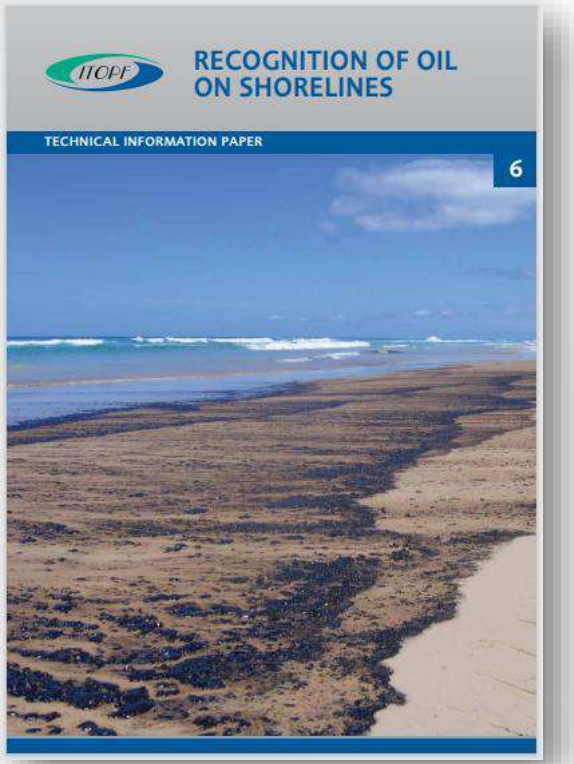
- Every response is different

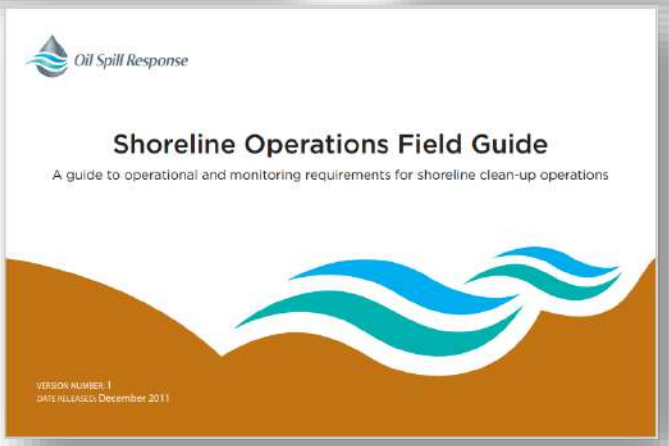
  (oiling level, shoreline type, oil type, seasonal variations, clean-up techniques, etc)

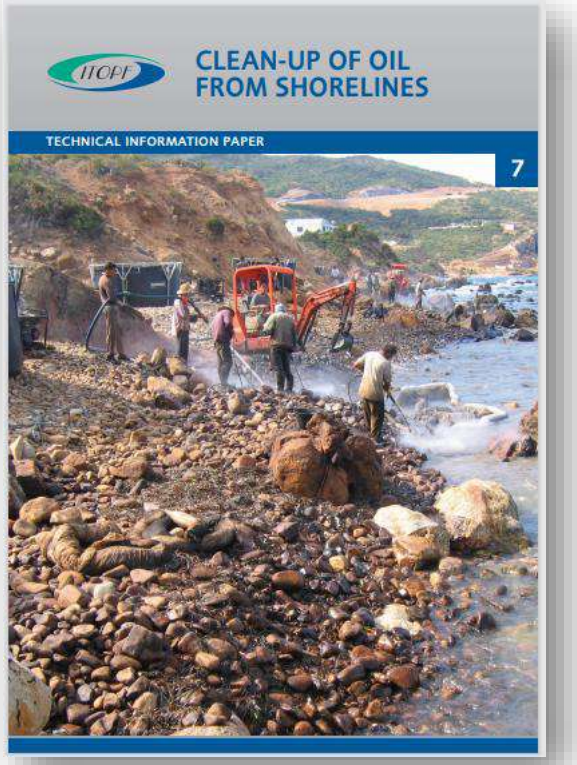
- Very important to use NEBA from the outset
- Shorelines may not be as clean as the public/media may like when an end point is met

# PUBLICATIONS

# Thank you

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