



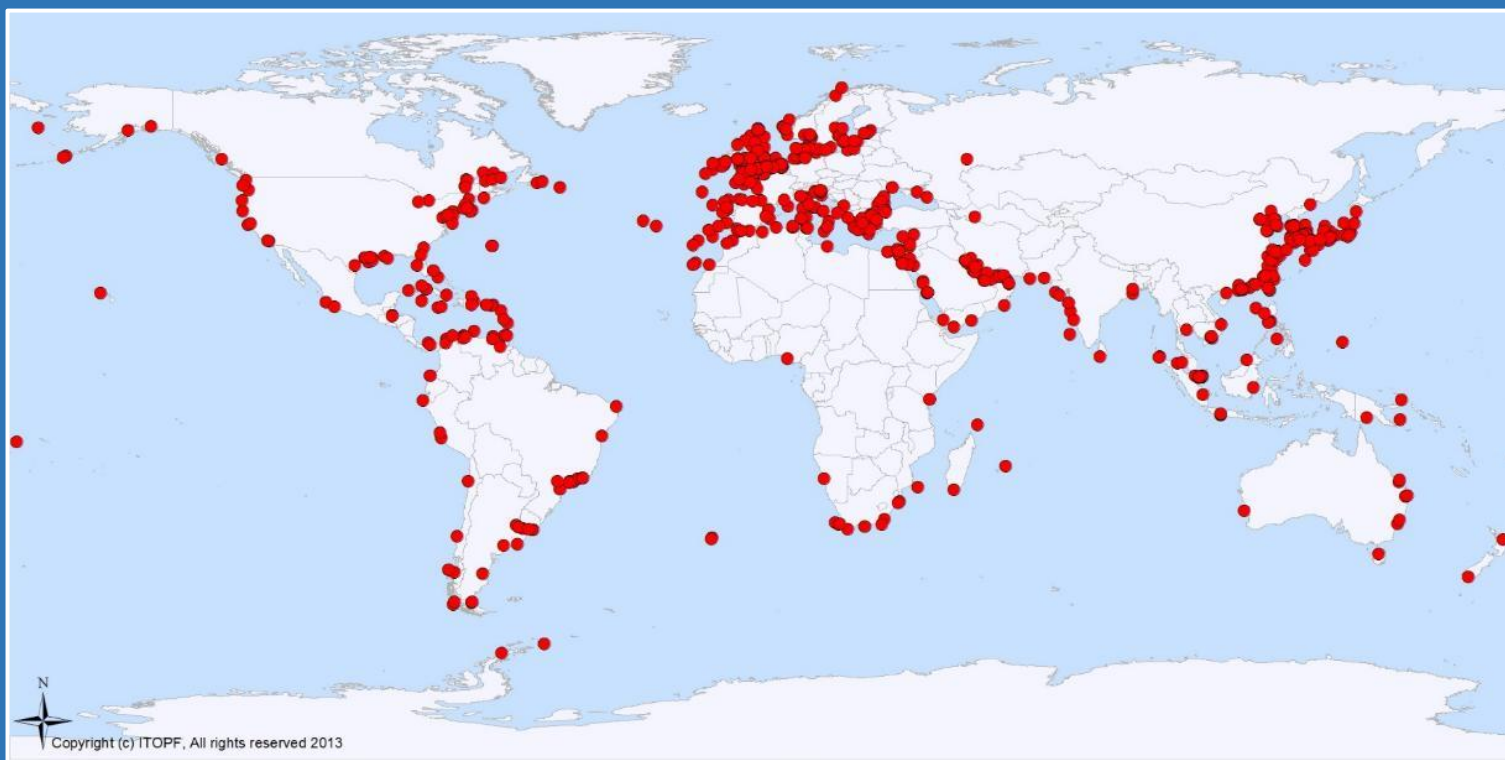
OIL POLLUTION RESPONSE & RHODOLITHS / CORALLINE ALGAE

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- Not-for-profit organisation established in 1968
- Primarily funded by shipping (via P&I Clubs)
- Main role: provide objective advice on marine spills of oil & HNS
- Main aim: 1^o source of advice of pollution advice for maritime community



- Single office in London with 33 staff
- Technical team with 16 responders:
 - ✓ Scientific background & spill experience
 - ✓ On site at >700 spills in 100 countries
- In-house databases and technical library
- China Liaison Officer in Shanghai since 2012



SPILLS ATTENDED IN BRAZIL





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SPILL RESPONSE (OIL & HNS)

DAMAGE ASSESSMENT & CLAIMS ANALYSIS

CONTINGENCY PLANNING & ADVISORY

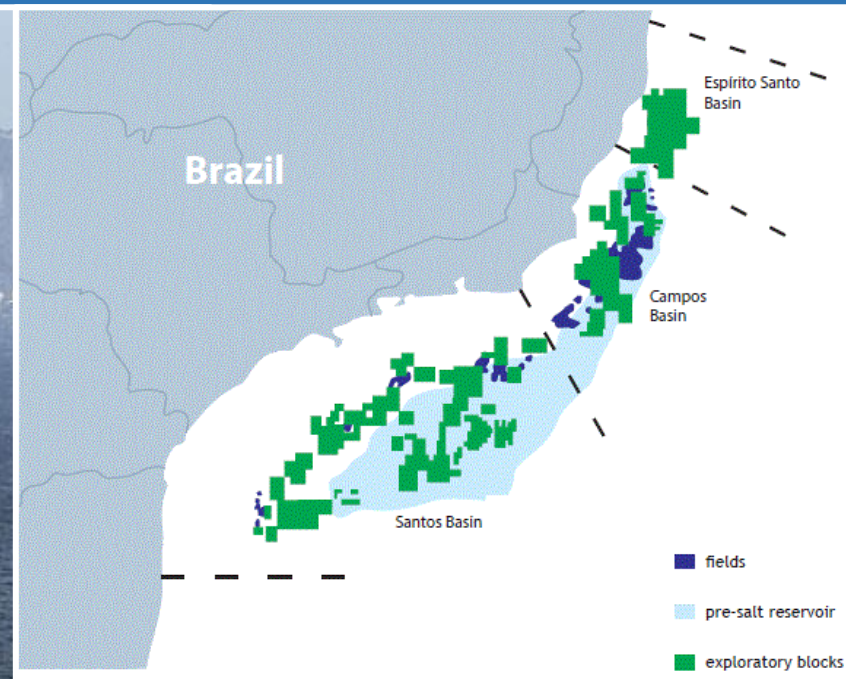
TRAINING & EDUCATION

INFORMATION

Rhodoliths / coralline algae / maerl beds



Associated benthic communities



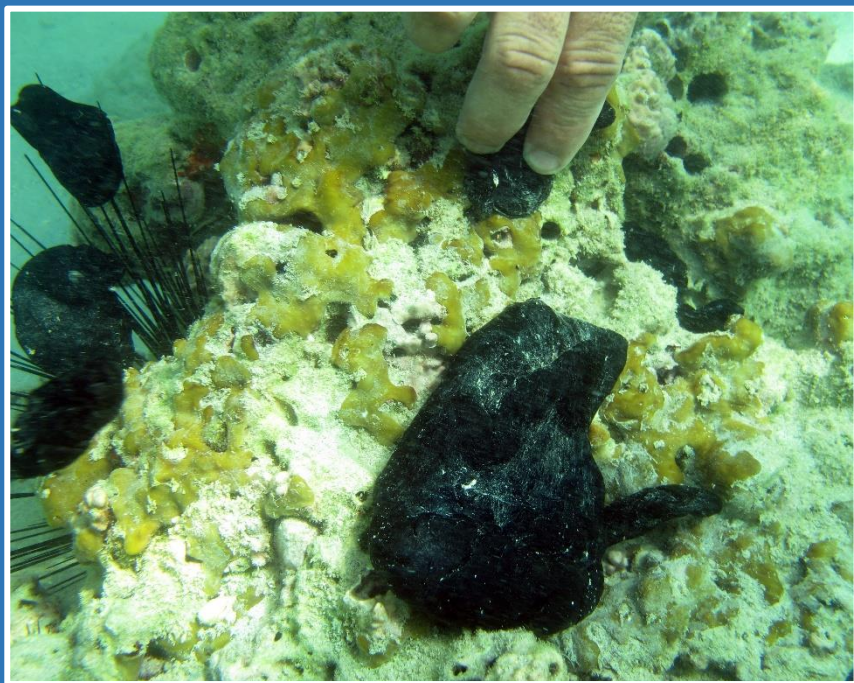
Potential Impacts

- Physical disturbance – underwater drilling and engineering (pipelines, anchors etc.)
- Well blow out – oil and sub-sea dispersant use
- Shipping or pipeline incident



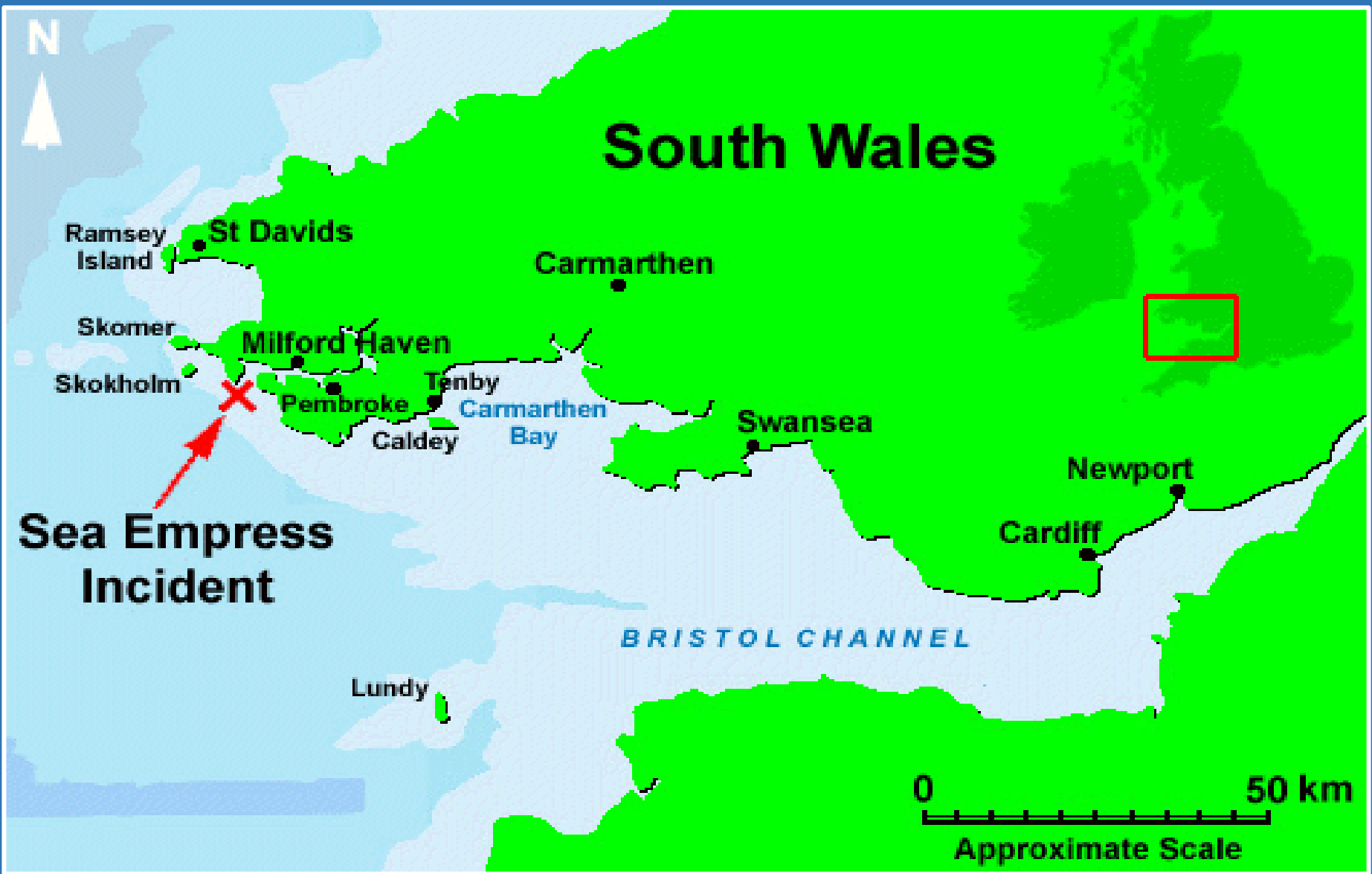
Potential Impacts

- Shipping or pipeline incident - direct contact with oil during a pollution incident
- Chronic pollution inputs – land run-off
- Coastal activities – economic and recreational
- Climate change



- Physical and chemical contamination of natural habitats
- Physical smothering impacts algae and associated community
- Toxic effects on flora and fauna
- Community changes resulting from effects of oil on key organisms
- Effects usually localised & transitory







- 72,000 MT of crude oil spilled
- 5% - 7% actually stranded on the coastline of South-west Wales
- At-sea response – model for dispersant use

Summary of scientific findings

Impacts

- No sub-littoral populations were bleached.
- Clear disjunction between littoral bleached and sub-littoral unbleached algae
- Where exposed to direct contact with fresh hydrocarbons, encrusting coralline algae appear to have a high intolerance

Recovery

- Typical recovery of populations occurred within about a year
- Partially dead plants regenerated new branches from basal crusts and shed dead branches
- Potential high recoverability. Little evidence of any trauma after 14 months.

NET ENVIRONMENTAL BENEFIT ANALYSIS

“A **net environmental benefit analysis** (NEBA) is a methodology for comparing and ranking the **net environmental benefit** associated with multiple management alternatives.”

Resources at Risk & Priorities for Protection

- Ecologically sensitive sites, amenity areas & other resources
- Equal protection cannot be provided so priorities must be decided

Response strategy

- General approaches to spill response in different situations
- Decisions based on the Risk Assessment & Priorities for Protection
- Planned actions must be in line with government regulations

CONTAINMENT & RECOVERY



Containment & Recovery

- Actively removes oil from the environment
- Low/negligible risk to seabed & marine environment
- Typically max. 10-15% spilled oil recovered
- High vessel, manpower and equipment requirements

IN-SITU BURNING



In-Situ burning

- Removes oil from sea surface
- Heavy residues and air pollution
- Requires calm weather, specialised equipment and experienced personnel
- Not suitable for populated areas or near infrastructure

DISPERSANTS



Dispersant Use

- Removes oil from sea surface and disperses into water column
- Deployed from vessel or air
- Not suitable for all oils
- Potential impacts to seabed in shallow waters



Oil Pollution and rhodoliths / coralline algae

- Ensure that this group is taken into consideration at the risk assessment and contingency planning stage
- Include this group in NEBA when assessing operational response strategies
- Have pre-planned monitoring protocols in place to assess impacts and recovery
- Restoration measures?



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Muito Obrigado