Kent and Medway Shoreline Pollution Emergency Plan

Version 2.5
January 2023

All enquiries or amendments relating to this document should be sent to:

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Next scheduled review: January 2025

KCC Resilience and Emergency Planning Service are accredited under ISO14001 (Environmental Management)

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Issue & review register		
Summary of changes	**Issue number & date**	**Approved by**
New Issue (V1)	September 2015	Tony Harwood Resilience and Emergencies Manager Kent County Council
Comprehensive update (V2)	September 2017	1. Fiona Gaffney Head of Resilience and Emergency Planning Service 2. Chris Drake County Oil Pollution Officer Kent County Council
KRF Consultation (V2.1)	October 2017	Formatting Completed. Published for KRF Consultation.
KRF Consultation (V2.2)	November 2017	Amendments made after KRF Consultation. 1. KRF Marine Pollution Sub Group 2. KRF Emergency Plans & Capabilities Group 3. KRF Executive Group
Annex update (V2.3)	August 2018	1. New annex U added 2. Relabel zonal plans as annex V 3. Changes updated on index 4. Update to annex T
KRF Consultation (V2.4)	November 2019	Minor amendments made after KRF Consultation, signed off by Dave Castle EP&C chair. Equalities Impact Assessment completed.
KRF consultation (V2.5)	November 2022	Minor amendments by Chris Drake and Tony Harwood, including expanding sewage pollution section.
THIS PLAN HAS BEEN SUBJECT TO An EQUALITIES IMPACT ASSESSMENT.		

Compiled by:
Tony Harwood
Resilience and Emergency Planning Manager
Kent County Council

Approved by:
Medway Council
KRF Marine Pollution Group Chair

The following organisations have been formally consulted on this plan:
Maritime and Coastguard Agency
Marine Management Organisation
Environment Agency
Natural England
Kent County Council
Medway Council
Kent Coastal Districts
Kent Resilience Team
Neighbouring Local Authorities
Local Port Authorities
Local Water Utilities
RSPB
RSPCA

Distribution list and location of document

Up-to-date copies of this document are available via Knet or Resilience Direct, with a public version on the KCC website Kent.gov. Paper copies of this plan are held in the County Emergency Centre, Invicta House.

Name	Role/Organisation
Kent Resilience Forum partners	Local Resilience Community
Adler and Allan	Current KCC Tier 2 Contractor
London Local Authority Co-ordination Centre (LLACC)	London Resilience Team
County Emergency Planning Officer	East Sussex County Council
County Emergency Planning Officer	West Sussex County Council
County Emergency Planning Officer	Essex County Council
Emergency Planning Manager	London Borough of Bexley

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1. Introduction

Kent and Medway's 326 mile coastline encompasses iconic seascapes, internationally significant wildlife habitats and sea side towns with economies integrally linked with the health of our marine environment. Further, the coastline is heavily influenced by maritime trade and industry, including the world's busiest international seaway in the Dover Strait, Europe's busiest ferry port at Dover, one of the largest off shore wind farms in the world at the London Array, and a major deep sea port facility at London Gateway in the Thames Estuary. Coastal Kent and Medway is also densely populated with a significant coverage of urban land uses, which brings additional pressures for the coastal and marine environment.

As a Party to the United Nations Convention on the Law of the Sea, the United Kingdom has an obligation to protect and preserve the marine environment. The **National Contingency Plan for Marine Pollution from Shipping and Off-shore Installations (September 2014 and reviewed 2022)** is one of the measures that the United Kingdom has taken to meet this obligation. The National Contingency Plan informs many parts of this emergency plan and should be maintained and read alongside it.

The National Contingency Plan largely relates to pollution from shipping at sea, often petroleum-based pollution, which is a key component of this shoreline pollution plan, however land-based pollution such as sewage is also covered here. A distinction is indicated wherever the response for land-based pollution is different from marine pollution as covered in the National Contingency Plan.

Paragraph 12.1 of the National Contingency Plan addresses "Responsibility for Clean-up" and states:

The following table provides guidance on who would assume the lead (**for maritime pollution response**):

Location of pollution	**Responsibility for ensuring clean- up**
On the water, jetties, wharves, structures, beach or shoreline owned by the Harbour Authority within the port/harbour area	**Harbour Authority**
Shoreline (including land exposed by falling tide)	**Local Authority**
Jetties, wharves, beaches and structures which are privately owned	**Owner of the property/land**
All other areas at sea (inside the UK Pollution Control Zone and the UK Continental Shelf)	**Maritime and Coastguard Agency and, when appropriate the offshore operator**

In terms of harbour authorities, it should be noted that the Port of London Authority has a jurisdiction for waters extending into the Thames Estuary. In addition, although the above table largely relates to marine pollution, local authorities and owners of land are also responsible for clear up of land-based pollution such as sewage, but in conjunction with the Environment Agency and water companies as category 1 and 2 responders respectively.

1.1 Scope

This Plan outlines an overarching policy framework for coastal shoreline pollution planning and response in Kent and Medway.

The objectives of this plan are:

1. To outline organisational responsibilities for shoreline pollution planning and response.
2. To provide emergency points of contact.
3. To determine relevant operational requirements of agencies in Kent.
4. To ensure the availability of personnel for effective co-ordination and delivery of the response.
5. To ensure that appropriate personnel are trained and exercised.
6. To ensure that liaison takes place across key partners.
7. To ensure effective planning for, and operational interventions to, pollution incidents impacting Kent's natural and built coastal environment.
8. To collate existing zonal shoreline access and sensitivity information and booming plans for Kent and Medway in one document.

1.2 Audience

Kent Resilience Forum partners and other south east marine pollution stakeholders should all refer to this document. The KRF Marine Pollution Sub Group have oversight of the document and were involved in the review for this current version.

1.3 Geographical Scope of this Emergency Plan

The geographical area covered by this plan encompasses the foreshore along the approximately 326 miles of Kent and Medway's coastline, from the north western administrative boundary of Dartford Borough (Dartford Creek) to the south western boundary of Folkestone and Hythe District (Dungeness).

1.4 Tier Notation for Shoreline Pollution Response

A nationally recognised Maritime and Coastguard Agency Tier notation which classifies the scale of shoreline pollution incidents is used to determine the correct and appropriate level of response. An internationally recognised three Tier classification is as follows:

Tier	Scale	Definition
1	**Local**	Within the capability of the affected local authority or port authority.
2	**Regional**	Beyond the capability of one local authority or requires additional contracted response from ports or harbours. KCC and Medway Council operate a Tier 2 clean-up contract.
3	**National**	Requires national resources co-ordinated by the Maritime and Coastguard Agency for a shipping incident and the operator for an offshore installation incident.

Within the area covered by this plan, Tier 1 pollution incidents will usually be dealt with by the relevant coastal local authority or port authority. Tier 2 pollution incidents will usually be dealt with by the relevant coastal local authority or port(s). Kent County Council, the affected district council and Medway Council will work together to mitigate and clean-up pollution that crosses local authority boundaries. The response to Tier 3 spills will be led by the Maritime and Coastguard Agency and the Kent and Medway response co-ordinated by a Strategic Co-ordinating Group.

This tier notation relates to marine pollution, as drawn down from the National Contingency Plan, but for land-based pollution such as sewage, the principle of KCC providing tactical co-ordination and support if the “incident is beyond the capability of one local authority to cope” still applies. However, the Environment Agency and water company will also be significantly involved in responding to such incidents at any scale as category 1 and 2 responders and will work alongside local authorities in this respect.

1.5 Types of Pollution

1.5.1 Marine Oil Pollution

Pollution of the marine environment, derived from a mineral, animal or vegetable origin, and land or sea-based escape.

1.5.1.1 Crude oils

The name petroleum covers both naturally occurring unprocessed crude oil and petroleum products that are made up of refined crude oil. Incidents of this type of pollution, consisting of thicker yellow to black oil are on the decline, but there is always the risk of a major oil spill, and this plan covers the response to this and other types of pollution.

1.5.1.2 Waxy mineral and vegetable oil pollution

This type of pollution is on the increase and can result in a white or yellow lumpy/crumbly material on the shoreline, ranging in size from football (sometimes larger) down to pea sized. The majority of these substances have been identified as a form of vegetable oils (e.g., palm oil, coconut oil etc. with a fatty acid composition) or mineral oils (hydrocarbons) specifically paraffin oils. These substances are part of a group of chemicals described as MARPOL Annex II high-viscosity, solidifying and persistent floating products.

These materials can be particularly viscous depending on the melting point of the product and how they behave in the marine environment. They are generally discharged as tank washings, both legally and illegally. They have very low solubility in water and float to the water's surface once discharged and depending on the water and air temperature, can solidify and form clumps.

If washed ashore, clear up operations can be extensive, beaches may be closed to the public, and disposal can be expensive, particularly in the case of more toxic mineral oils. Early chemical identification, quick removal from the environment and temporary waste storage are key considerations. Following incidents on the Channel coastline from Hampshire to Kent during early 2016 the Kent Resilience Forum Marine and Aquatic Pollution Sub Group has worked in conjunction with the MCA on a STOp notice on mineral and vegetable oil, this is now provided in Annex T within this plan and specific advice relating to the Kent Coast is provided in Annex U.

In the period since publication of the STOp notice, the number of such incidents has dramatically declined, greater awareness that this is on MCA’s agenda, including the STOp notice, may have helped.

1.5.2 Hazardous Noxious Substances

Hazardous Noxious Substance (non-oil) spills into the marine environment arising from a land-based source or a vessel or structure at sea. Please see Annex S.

1.5.3 Cargo

Cargo pollution comprises, usually inert, materials arising from a discharge to the marine environment, which may have arisen from a land-based source or a vessel or structure at sea. Close-working with the Receiver of Wreck (who co-ordinate the response) are key to this type of response.

1.5.4 Land-based Source Wastewater or Sewage Pollution

The Environment Agency will co-ordinate with the affected water utility in the event of a wastewater or sewage pollution incidents affecting the aquatic or marine environment.

Wastewater or sewage is collected in sewers beneath residential, commercial and industrial properties. Many of the sewers in Kent and Medway are combined sewers, which mean they collect sewage as well as surface water, e.g., rainfall, road runoff, etc. Combined sewer systems are vulnerable to significant increases in flow during rainfall, particularly in more urbanised areas. Once in the collecting sewer, sewage flows using gravity and gradient in the sewer, or through pumped rising mains to what are referred to as wastewater pumping stations (WwPS) for onward pumping to treatment at wastewater treatment works (WwTW).

Under normal dry weather flow conditions all sewage is pumped from WwPS to WwTW where it receives several stages of treatment, including for bathing water works ultraviolet light disinfection, prior to discharge to our rivers and seas.

During storm conditions the stations continue to pump flows to full treatment at the WwTW. However, when inflows to the stations or the works exceed flow rates set out in the regulatory permit as agreed by the Environment Agency, the assets operate differently. Excess flows that cannot be passed forward, during peak flows are stored in large storm tanks. For the vast majority of storm events this additional facility will cope with the extra flows generated by the rainfall. Once flows return to normal the tanks are drained down and the storm flows are passed through the treatment process.

If the capacity of the tanks and surrounding sewers is utilised the stations can make storm sewage or emergency discharges to the environment. These discharges are permitted through an environmental permit, issued by the Environment Agency. They are designed to relieve pressure, alongside Combined Sewer Overflows (CSO's), on the network that could otherwise cause flooding to properties and public spaces.

The majority of storm related discharges are screened and diluted. That is to say that any discharged storm sewage will have passed through screens to remove large portions of the sewage rag and associated debris, also the additional surface water in the system will assist in diluting sewage prior to discharge. It is well recognised that river and coastal water quality will decrease following heavy rainfall.

In the circumstances of mechanical or electrical failures at WwPSs and/or WwTWs where discharges of sewage may not be screened and will not have the benefit of storm rainfall to dilute flows then the water company, the Environment Agency and the Local Authorities must co-ordinate and communicate to ensure the correct public information is made available in a timely fashion and is maintained through the duration of the incident.

Early notification from the Water Company is key. The Environment Agency have a 24/7 Hotline for the reporting of incident (tel. 0800 80 70 60).These calls will be referred to the Environment Management Duty Officer for assessment. The local authorities, who will be alerted by the Environment Agency and/or relevant water utility, are encouraged to log and maintain their own notification procedures and these should be shared with the water company and the Environment Agency so that they and the Environment Agency are informed simultaneously.

The water company will have the responsibility to maintain technical and asset condition information and share as appropriate with partners. How this information will be shared with partners will need to be clearly established early in the incident, in the event of more significant releases it is recommended that a multi-agency Tactical Co-ordination Centre is

established. The Environment Agency will provide water quality information to partners as part of the incident response process. The local authorities will use the information from the water company and the Environment Agency to produce suitable public information displays for beaches and bathing waters. In the event of large or prolonged spills, or those that could impact upon a protected site or shellfish beds the information should also be shared with other key partners such as Natural England, Cefas, IFCAs, etc.

Public warning and informing, encompassing online and physical installations, and potential beach closures are key considerations where sewage contamination impacts coastal waters and the foreshore. Effective and timely liaison between water utilities, Environment Agency, District Councils, Kent County Council and Medway Council is key to ensuring appropriate safeguards and alerting of the public and affected businesses.

1.5.5 Algal Blooms

A wide range of algae species inhabit our inland waters, estuaries and the sea. Blooms can form when their numbers become excessive.

Where high levels of phosphorus exist, and other requirements for growth are met – for example, adequate light, mixing, flow and temperature - the numbers of algae may increase rapidly. Increased periods of growth are called blooms. Blooms can have a negative effect on the appearance, quality (including dissolved oxygen depletion) and use of the water. It may become green, blue-green, greenish brown, brown or red, and several species can produce musty, earthy or grassy odours. Blooms can also cause foaming on and discolouration of the shoreline - sometimes confused with sewage or even oil pollution.

Bloom and scum forming algae can produce toxins. Toxin producing blooms are called Harmful Algal Blooms (HABs). These toxins can kill aquatic and terrestrial wildlife, livestock and domestic pets. In humans, they can cause rashes after skin contact and illnesses if swallowed. Not all blue-green algae blooms and scums are toxic, but it should be assumed that they are.

In the event of algal blooms, the Environment Agency, local authorities and other key partners should undertake liaison in relation to warning users, erecting signs, restricting access, rescue of distressed wildlife and other interventions.

Dimethyl sulphide released to the atmosphere by algal blooms can under certain circumstances chemically combine with ozone, from road and sea transport, to form a potentially toxic aerosol (as experienced at Birling Gap, East Sussex in summer 2017).

There is some evidence that the trend towards an increased frequency of severe weather events as a consequence of climate change (i.e., heatwave and intense summer rainfall events) is resulting in a greater risk of algal blooms.

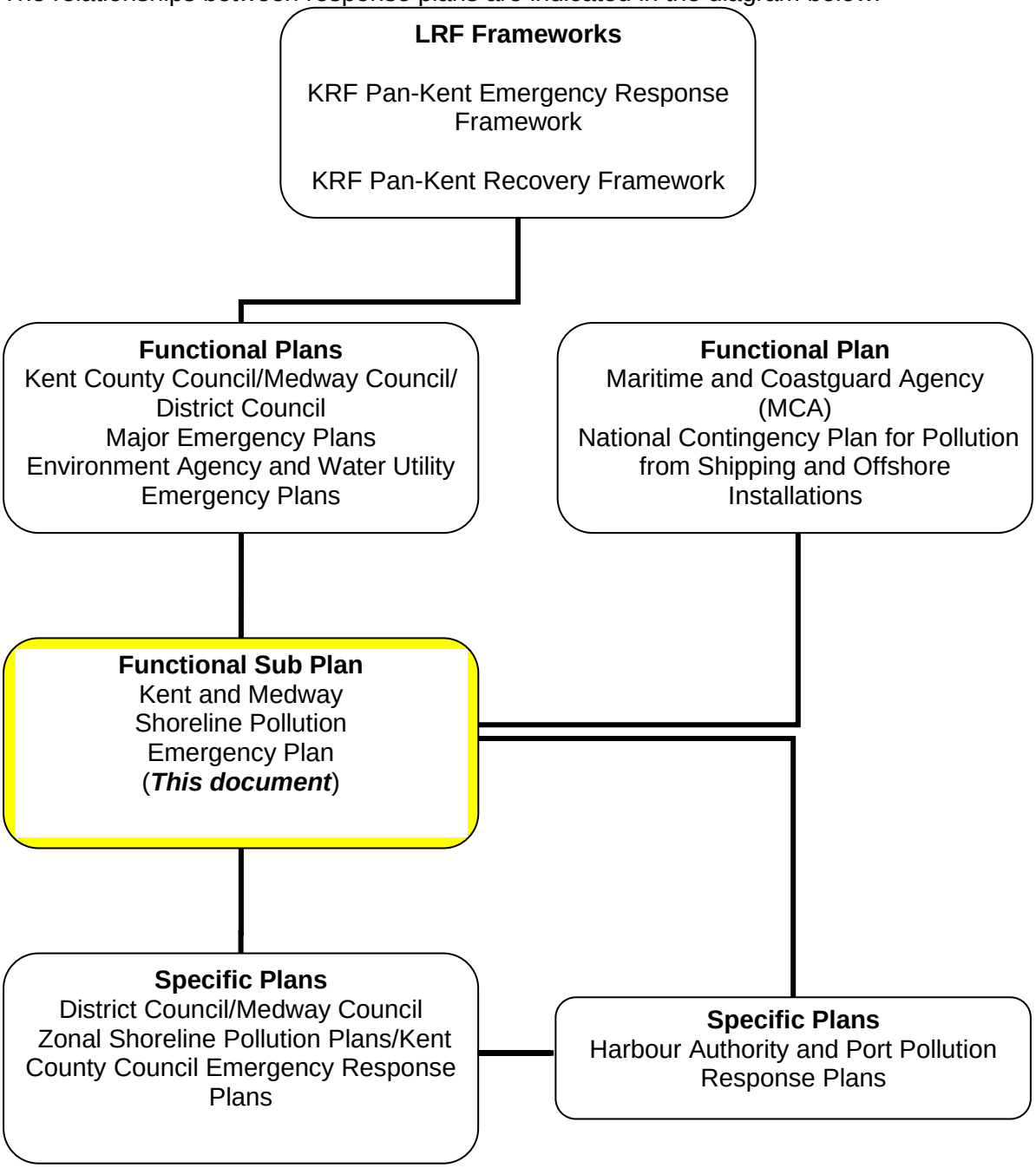
1.5.6 Dead Marine Wildlife on Foreshore

Following scientific investigation, the local authority may be required to move or dispose of a dead marine animal(s) such as whales, porpoises and seals from the foreshore. A common-sense risk analysis will need to be made informed by the size, condition and location of the stranding i.e. animals within inaccessible or remote locations, especially smaller species, and those in an advanced state of decomposition, may simply be left for natural processes to take their course, however, large dead animals in highly populated areas, on amenity beaches or with the potential to cause a hazard to shipping if re-floated may require removal and disposal by the most practical and environmentally sustainable means available. Beach-

burial on amenity beaches and burning (both approaches historically utilised in Kent) are not recommended, because of the potential for pathogen spread and residue. Co-operation between the waste collection local authority (District or Medway Council), waste disposal authority (Medway or Kent County Council) and Natural England is recommended. Further information may be found within the Kent Resilience Forum / KCC ‘Guidance Note for Dealing with Whales, Dolphins and other large Marine Wildlife on Kent Coast’ at Annex V.

1.6 Related and Interdependent Plans

The relationships between response plans are indicated in the diagram below:



2. Local Authority and Agency Responsibilities

2.1 Kent County Council (KCC)

Kent County Council has agreed to accept responsibility for:

- Maintaining the Kent and Medway Shoreline Pollution Plan and facilitating the training and exercising programme necessary to ensure its effectiveness.
- Supporting coastal district councils and port authorities with KCC resources for Tier 2 response.
- Supporting the Maritime and Coastguard Agency with KCC resources for Tier 3 response.
- Notifying Medway Council of any risk of pollution impacting the shoreline in Medway; and
- Co-ordination of shoreline response in the event or threat of pollution from small vessel(s) stranded close inshore.

KCC will also co-ordinate action whenever it is agreed that the task of dealing with pollution on the foreshore is beyond the resources of the affected district council(s) or port authority. In these circumstances, KCC will deploy its resources (which include a specialist 'Tier 2' clean-up and waste disposal contractor), to augment the resources being deployed by district councils and/or port authorities. KCC can also assist in establishing and chairing multi-agency meetings to assist with co-ordination and information sharing for Tier 2 incidents.

The County Oil Pollution Officer (COPO) role is a function of the Natural Environment and Coast team at KCC, and the deputy role is a function of the Resilience and Emergency Planning Officer.

2.2 Medway Council

Medway Council is responsible for:

- Providing resources for Tier 1 and 2 response within the boundaries of the administrative area of Medway Council.
- Supporting the Maritime and Coastguard Agency with Medway Council resources for Tier 3 response.
- Notifying neighbouring local authorities and KCC of any risk of pollution impacting their shoreline; and
- Co-ordination of shoreline response in the event or threat of pollution from a small vessel(s) stranded close inshore within the boundaries of the administrative area of Medway Council.

2.3 Coastal/Riparian District Councils

District Councils are responsible for:

- Co-ordination of Tier 1 response within their administrative boundaries, including privately owned shorelines outside of Port/Harbour precincts.
- Supporting Kent County Council with district council resources for Tier 2 response.
- Supporting the Maritime and Coastguard Agency with district council resources for

Tier 3 response.

- Notifying Medway Council of any risk of pollution impacting their shoreline.
- Work with Medway Council to mitigate and respond to cross boundary pollution incidents; and
- Maintaining district council 'zonal' oil pollution plans.

2.4 Secretary of State's Representative (SOSREP) Responsibilities

SOSREP is responsible for:

- Salvage and containment issues for incidents involving shipping and offshore oil and gas infrastructure; and
- Determine whether a Salvage Control Unit, in relation to shipping, or an Operations Control Unit, in relation to oil and gas activities, is required.

2.5 Marine Management Organisation (MMO) Responsibilities

MMO is responsible for:

- Acting as the regulatory authority for the use of oil dispersant products.
- A licensing authority for removal of larger dead sea-life and other large materials from below high tide mark.

2.6 Maritime and Coastguard Agency

The Maritime and Coastguard Agency is responsible for:

- Leading the at-sea response through a Marine Response Centre.
- Issuing oil pollution reports or POLREPS (this includes alerting Counter Pollution and Response Branch); and
- Co-ordination of Tier 3 response.

2.7 Environment Agency

The Environment Agency is responsible for:

- Investigation of marine pollution derived from land sources (including sewage contamination).
- Providing advice on the water pollution control aspects of contaminated waste disposal; and
- Mobilisation of Standing Environment Group(s).

2.8 Natural England

Natural England are the statutory advisors for the natural environment in England, including marine protected areas (MPAs). As such, it is our role to provide advice on marine designated sites and features of conservation interest in the shoreline and offshore up to 12 Nautical Miles.

3. Responsibilities of Ports and Harbours Merchant Shipping (Oil Pollution Preparedness, Response and Cooperation Convention) Regulations 1998

3.1 Ports and Harbours

Ports, harbours and oil handling installations falling within certain criteria are required to prepare oil spill contingency plans. All the ports and harbours listed below have such plans.

a) Port of London Authority (PLA)
The PLA has responsibility for dealing with floating oil on the river within its area of jurisdiction. This includes all creeks and tidal stretches of rivers draining into the River Thames.

The PLA can mobilise the Thames Oil Spill Clearance Association (TOSCA). The area of operations under TOSCA encompasses the waters of the River Thames from Tower Bridge to the former seaward limit of the PLA between Havengore Creek and Warden Point on the Isle of Sheppey.

b) Peel (Medway) Ports
Peel (Medway) Ports has responsibility for dealing with floating oil in the River Medway within its area of jurisdiction. This encompasses all of the tidal River Medway (upstream to Allington Lock) including all creeks and The Swale.

c) Dover Harbour Board
Dover Harbour Board has responsibility for oil afloat on the water within the harbour and on any structure or land owned by the Harbour Authority within its area of jurisdiction. Any oil afloat will be dealt with by the Harbour's own resources which can be supplemented with other local authority resources. A copy of the Marine Pollution Response Plan is available on the Dover Harbour Board website.

d) Royal Harbour of Ramsgate
Ramsgate Harbour is owned by Thanet District Council. Any oil afloat will be dealt with by the Harbour's own resources which can be supplemented with other local authority resources.

e) Whitstable Harbour
Whitstable Harbour is owned by Canterbury City Council. Any oil afloat, within the harbour limits will be dealt with by the Harbour's own resources which can be supplemented with other local authority resources.

f) Folkestone Harbour
Folkestone Harbour is in private ownership. The owners are responsible for dealing with oil afloat within the Harbour’s area of jurisdiction.

4. Financial Arrangements for Responding to Shoreline Pollution

The “polluter pays” principle operates in relation to maritime pollution clean-up and local authorities will actively seek re-imbursement of all reasonable clean-up costs from insurers or other representatives of the company/organisation/individual identified as the polluter.

To assist the claims process for shoreline pollution clean-up and response costs it is vital that thorough records are maintained (including photographs) – evidencing the incident response and all associated financial impacts upon responding agencies (including personnel costs).

Please refer to Annex K for further information.

5. Arrangements for Reporting Oil Spills

5.1 Oil at Sea

All sightings of oil pollution at sea should be reported to HM Coastguard on 01304 210008. HM Coastguard will investigate reports and alert the Maritime and Coastguard Agency Counter Pollution and Response Branch (CPRB). The Counter Pollution and Response Branch will determine and direct at-sea counter-pollution activities which it considers necessary.

Unless a local authority or other agency has discovered the pollution, the Counter Pollution and Response Branch will inform Kent County Council and Medway Council and keep them advised of the action being taken. In the event of a delay in contacting Counter Pollution and Response Branch, the Coastguard has the authority to deploy counter-pollution resources in the very early stages of an incident. HM Coastguard will disseminate reports using a standard proforma known as a CG77 "POLREP".

A "POLREP" gives details of the time, date and place of the incident, weather and sea conditions, details of the reporting vessel, aircraft or individual, the extent of any slick, the name of the polluting vessel, if known, as well as an opinion on whether oil is likely to come ashore.

HM Coastguard copies the POLREP to all interested parties. It is important that all relevant partners ensure that HM Coastguard maintains up-to-date contact points for dissemination of POLREPs. POLREPs should also be used to inform any initial shoreline clear up operation.

Please refer to Annex G to view POLREP proforma.

5.2 Oil on Foreshore

All sightings of oil on the beach and/or floating in-shore should be reported to HM Coastguard, as above on 01304 210008. They will investigate any report and if necessary, issue a POLREP for all confirmed incidents. The POLREP will then be disseminated as outlined above.

Incidents of land based shoreline pollution such as sewage should be reported to the he Environment Agency who have a 24/7 Hotline for the reporting of incident (tel. 0800 80 70 60)

6. Action in the Event of an Oil Spill

6.1 Formal alerting arrangements in a major emergency

This Section of the Plan, together with Annexes G & H, relates to Reg. 24 of the Civil Contingencies Act 2004 (Contingency Planning) Regulations 2005.

6.2 KCC Duty Emergency Planning Officer (DEPO) - Actions

Pollution reports may be received through a formal POLREP, however, reports of maritime pollution incidents may come from a range of sources including the public, media reports, social media, port or harbour authorities, Environment Agency or other sources. The KCC Duty Emergency Planning Officer (DEPO) or nominated deputy will evaluate the scale of the threat and take the following actions, as appropriate:

- Check the source and authenticity of the report with HM Coastguard and potentially Environment Agency, affected district council(s) and/or relevant port/ harbour authorities.
- Determine type and extent of pollution (this may require deployment of Incident Liaison Officers to scene to undertake assessment of situation and/or liaison with partners).
- Note from the POLREP (if issued) the state of the sea, tide and wind and likely trajectory of pollution; and

Having established that a threat exists the officer will:-

- Notify the appropriate District Oil Pollution Officer(s).
- Liaise with County Oil Pollution Officer to consider the need for:-
  - County Council response (including mobilisation of specialist clean-up contractor).
  - If the County Emergency Centre (CEC) is to be established; and
  - If there is a need to mobilise integrated emergency management structures i.e., Strategic, Tactical and Operational Co-ordinating Groups.
- Maintain dialogue with appropriate Kent local authorities and other partners.
- Maintain a log of events.
- If necessary, forward a copy of POLREP to appropriate DOPO(s) and COPO.
- If necessary, initiate contact with neighbouring authorities e.g., East Sussex CC, Essex CC or LB Bexley; and
- Refer to Annex F and consider the need to contact other organisations listed.

Please refer to Annex G to view POLREP proforma.

6.3 Medway Council Oil Pollution Officer (MCOPO) – Actions

Pollution reports may be received through a formal POLREP, however, reports of maritime pollution incidents may come from a range of sources including the public, media reports, port authority, Environment Agency or other sources. The Medway Council Oil Pollution Officer (MCOPO) or nominated deputy will evaluate the scale of the threat and take the following actions, as appropriate:

- Check the source and authenticity of the report with HM Coastguard and potentially Environment Agency and/or Port of London Authority or Medway Ports.
- Determine type and extent of pollution by deploying a Shoreline Clean-up Assessment Technique (SCAT) trained officer to undertake assessment.
- Contact neighbouring local authorities and Kent County Council to advise them that the pollution incident may impact their areas; and
- Note from the POLREP (if issued) the state of the sea, tide and wind and likely trajectory of pollution; and
- Refer to Annex F and consider the need to contact other organisations listed.

6.4 District Oil Pollution Officer (DOPO) - Actions

On receipt of a POLREP or any other report of pollution on or threatening the foreshore, District Oil Pollution Officer will liaise with KCC Duty Emergency Planning Officer on the available intelligence and any further reconnaissance required and consider any urgent protective interventions needed to protect sensitive areas.

In cases where oil or other pollution occurs or threatens the coastline and District Oil Pollution Officer is the first to receive a report e.g., from a member of the public, the District Oil Pollution Officer should report the incident to HM Coastguard and to KCC Duty Emergency Planning Officer. Ideally, district staff should determine the type and extent of pollution by deploying a Shoreline Clean-up Assessment Technique (SCAT) survey.

The report should include this survey and/or information about the location, nature and extent of the pollution including, if known, the type of oil.

It is advisable for District Oil Pollution Officer to inspect and photograph the shoreline and to prepare a report for use as evidence in case a subsequent claim for compensation needs to be made. Samples of oil pollution must be taken to confirm/inform identification of polluter (through analysis of “chemical signature”). KCC Kent Scientific Services (KSS) are equipped to analyse samples. KSS may be mobilised 24/7 via the KCC Duty Emergency Planning Officer.

If an oil (or other) pollution incident is assessed as requiring clean-up intervention, District Oil Pollution Officer should assess the scale of the incident and the level of response required.

If Kent County Council assistance is required, the KCC Duty Emergency Planning Officer must be informed of the tier of pollution and type of assistance required. An agreement may need to be arrived at between the district authority and KCC to determine the tier of the incident.

Please refer to Annex D for further information.

6.5 County Oil Pollution Officer (COPO) - Actions

When notified of oil (or other) pollution impacting (or with potential to impact) the foreshore the County Oil Pollution Officer will liaise with the Duty Emergency Planning Officer to consider:-

- Areas of coastline likely to be affected and the threat to protected sites, amenity beaches, commercial interests, Environment Agency infra-structure and power station intakes.
- Establishing the County Emergency Centre (CEC) and/or integrated emergency management structure.
- Mobilising contractors.
- Procuring external resources as necessary.
- Making arrangements for the disposal of waste arising from the incident in conjunction with KCC clean-up contractors, KCC Environment, Transport and Waste, and Environment Agency; and
- Maintaining a log of events and financial records.

In many cases, the CEC set up and deployment of contractors will not be required, but waste disposal of hazardous waste has been a more frequent necessity.

7. County Emergency Centre (CEC)

The Duty Emergency Planning Officer is responsible for arranging for the County Emergency Centre (CEC) to be activated and staffed as appropriate. They will notify other organisations (see Annex F) and request the attendance of liaison officers at the County Emergency Centre. At the request of Duty Emergency Planning Officer, the District Oil Pollution Officer(s) will send an Incident Liaison Officer (ILO) to the County Emergency Centre.

The need to establish the County Emergency Centre and the role it takes will be determined by the tier of spill and the level of County Council involvement. For Tier 1 spills it is unlikely that the County Emergency Centre will be established, although a more informal online county input can be provided to monitor whether a situation might convert from a tier 1 into tier 2 requiring more resources.

For Tier 2 spills, in particular those affecting more than one district, the County Emergency Centre may be established either to co-ordinate the overall response or to co-ordinate the provision of County Council resources. For Tier 3 spills the County Emergency Centre may be established to support local authority staff working within Strategic, Tactical and Operational Co-ordinating Centres.

When the County Emergency Centre is established as part of the response to a marine pollution emergency it will be staffed by an Operations Team and Operations Manager in accordance with the principles set out in the Kent County Council Major Emergency Plan.

8. Medway Council Emergency Centre (MCEC)

The Initial Co-ordinator, in conjunction with Medway Council's Tactical/Silver Commander will determine when the Council's Emergency Centre (MCEC) will be activated to provide a focus for the Council's response. If a multi-agency emergency management structure has not been mobilised the Council may request the attendance of liaison officers from other responding organisations.

The degree or tier level along with the location of the pollution will influence the decision by Medway Council to activate its MCEC. For Tier 1 pollution incidents it is unlikely that the MCEC will be established, for Tier 2 events the MCEC may be established, while for Tier 3 spills the MCEC will be established.

9. Integrated Emergency Management

When the Kent Resilience Forum Integrated Emergency Management structure is established the Maritime and Coastguard Agency will bear the costs of resources it makes available from its own stockpiles together with any other resources it decides are necessary, which local authorities cannot reasonably be expected to provide.

During a major shipping oil pollution incident spill, which requires a co-ordinated response from both national and local authorities, the Maritime and Coastguard Agency in conjunction with HM Coastguard will take the lead.

9.1 Strategic Co-ordinating Group

The Strategic Co-ordinating Group provides strategic direction and decision-making and determines longer-term and wider impacts and risks.

This group will identify the short, medium and longer term issues that the Tactical Co-ordinating Group/Recovery Co-ordinating Group need to consider. This should identify significant and potentially significant issues for the response strategy as a whole looking at time frames of say: the next 1-3 days, 3-10 days and beyond 10 days.

Considerations for the Strategic Co-ordinating Group include:

- Agreeing an overall strategy for the response and communicating this to other response groups.
- Determining longer-term wider impacts and risks with strategic implications.
- Assigning priorities based on threat, impact and available resources.
- Monitoring progress and effectiveness of the clean-up operation.
- Issuing regular joint briefings to the press, elected representatives, Central Government Ministers and other interested parties (co-ordinated by a dedicated Media Group if necessary).
- Issuing regular situation reports on the conduct of operations to all interested parties, specifically - Elected Members and Ministers.
- Considering recovery implications and commission the formation of the Recovery Co-ordinating Group; and
- Liaison with government.

Membership: Suggested Strategic Co-ordinating Group membership for a marine pollution incident is provided in the following table:

Organisation	Who	Role
Environment Group/STAC Representative	**Environmental Liaison Officer**	**Environmental/public health advice to SCG**
Maritime and Coastguard Agency Representative	**MCA Scientist**	**Advice on spill response and its management**
HM Coastguard	**Senior Coastal Operations Officer**	**Main link between SCG and HMCG**

Operator's/Insurers	**Senior representative**	**Monitoring of operations and costs for reasonableness**
Clean-up contractors	**Senior representative**	**Strategic overview of all resources and manpower**
Environment Agency	**Appropriate personnel**	**Technical advice (primarily for aquatic and wastewater/sewage pollution incidents)**
Wastewater utility	**Appropriate personnel**	**Co-ordination and technical advice (wastewater/sewage pollution incidents)**
Affected local authorities	**Appropriate personnel**	**Co-ordination and technical advice (emergency management/environment/economy/planning/Public Health)**
Port authority	**Appropriate personnel**	**Advice on spill response and its management (if incident occurs in River Thames)**
Police	Senior representative	**Strategic overview**
Fire & Rescue	Senior representative	**Strategic overview**

Strategic Co-ordinating Group Media Group
A Media Group may need to be established to provide co-ordination for media and public information. This group will work closely with the Strategic Co-ordination Group, at-sea co-ordination groups and may be led initially by the Maritime and Coastguard Agency press office. These responsibilities will fall to the Tactical Co-ordinating Group if a Strategic Co-ordinating Group is not established.

Callers offering assistance, in particular equipment and products may generate significant message traffic during a maritime incident. Any public helpline should be organised by the company or local authority using their normal customer contact centre as these individuals will be trained to deal with the public. The latest information will be supplied by the Media Group to this contact centre.

Suggested Membership
- Maritime and Coastguard Agency press office (nominal chair).
- Local authority media staff and press officers.
- Ship owner/operator press and media staff.
- Salvors representative if appropriate; and
- Lead government department representative if deemed necessary.

9.2. Tactical Co-ordinating Group

The role of the TCG is to plan, coordinate and provide tactical decision making for the on-shore response phase of the emergency. Working in co-operation, the responder agencies tactical commanders will implement the strategy for response by:
- Determining priorities for allocating available resources.
- Planning and co-ordinating how and when tasks will be undertaken.

- Obtaining additional resources if required.
- Assessing significant risks and use this to inform tasking of operational commanders; and
- Ensuring the health and safety of the public and all personnel.

9.3 Recovery Co-ordinating Group

A shoreline pollution incident will usually have response implications, but the majority of clean-up will take place in the recovery phase of the emergency, managed by the Recovery Co-ordinating Group. Recovery is defined as the process of rebuilding, restoring and rehabilitating the community following an emergency.

It is best practise for the Strategic Co-ordinating Group to commission the formation of a local authority led Recovery Co-ordinating Group early in the emergency. The Recovery Co-ordinating Group will run concurrently with the Strategic Co-ordinating Group/Tactical Co-ordinating Group until the Strategic Co-ordinating Group hands over control of the emergency to the Recovery Co-ordinating Group when it is satisfied there is no further risk to life and that the response requires no further strategic or tactical co-ordination. In many cases the membership of the Tactical Co-ordinating Group and its groups will morph into becoming the Recovery Co-ordinating Group as the situation changes from the urgent response phase to the longer-lasting recovery phase.

The role of the Recovery Co-ordinating Group is to develop a clear strategy for recovering from the emergency. The recovery strategy will be based on an impact assessment and will usually include:

- A concise, balanced, affordable recovery action plan.
- Monitoring and protection of public health.
- Actions to restore all affected areas to an agreed standard so that they are suitable for use for their defined future purposes.
- Co-ordination of environmental protection and recovery issues.
- Information and media management.
- Effective protocols for political involvement and liaison.
- Consideration for longer term regeneration and economic development as part of the recovery process; and
- A pro-active and integrated framework of support to businesses.

Suggested Membership:

The local authority will usually lead the recovery process and chair the Recovery Co-ordinating Group; however, they will need strong support from a wide range of multi-agency local and Category 1 and 2 responders. Local authority Recovery Plans will outline the organisations that have been identified to participate in a Recover Co-ordinating Group. In addition to standard membership, for a marine incident it is suggested that the following representatives should be invited:

- EG/STAC representative.
- MCA representative.
- Operator's representative.
- Operator's/Insurers representative; and
- Clean-up Contractors senior representative.

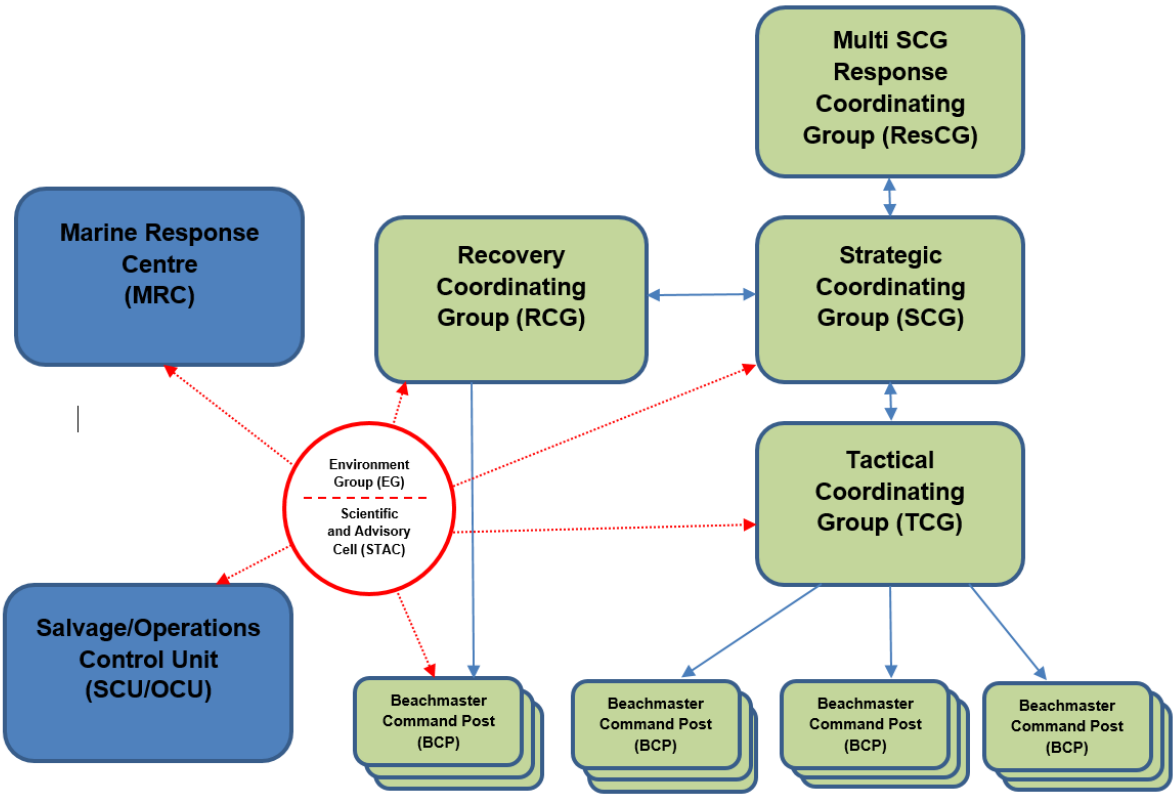
Cross Local Authority Boundary Working:

Recovery Co-ordinating Groups are based on Local Resilience Forum boundaries. Where the emergency crosses a local authority boundary within the LRF area, there will be local arrangements for the affected local authorities to designate a lead local authority that would

provide the Recovery Co-ordinating Group Chair and Secretariat. Other local authorities could then provide deputy chairs as necessary.

Where an incident impacts upon more than one Local Resilience Forum area, the recovery phase is co-ordinated by a DCLG led Multi Recovery Co-ordinating Group.

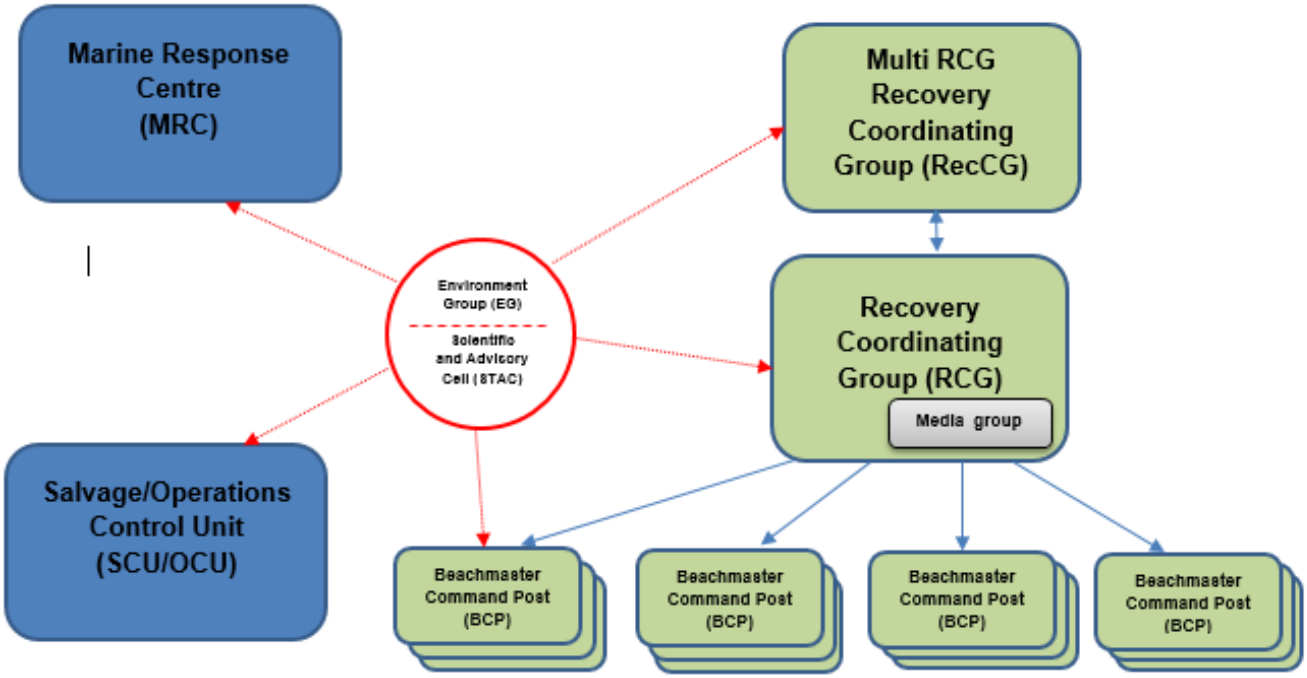
The outline team structure and lines of interaction for the initial response phase to marine pollution affecting more than one LRF area is shown in the Figure 2.



Source: UK National Contingency Plan

Figure 2 - Team structure and lines of interaction for initial response phase

The outline team structure and lines of interaction when the initial response phase has concluded and when the focus is on recovery is shown in Figure 3.



Source: UK National Contingency Plan

Figure 3 - Team structure and lines of interaction for recovery phase

Sub-Groups of the Recovery Co-ordinating Group

The recovery strategy is usually implemented by various functional sub-groups, set up and co-ordinated by the Recovery Co-ordinating Group. A diagram showing the structure identified in the Emergency Response and Recovery guidance is shown in figure 4.

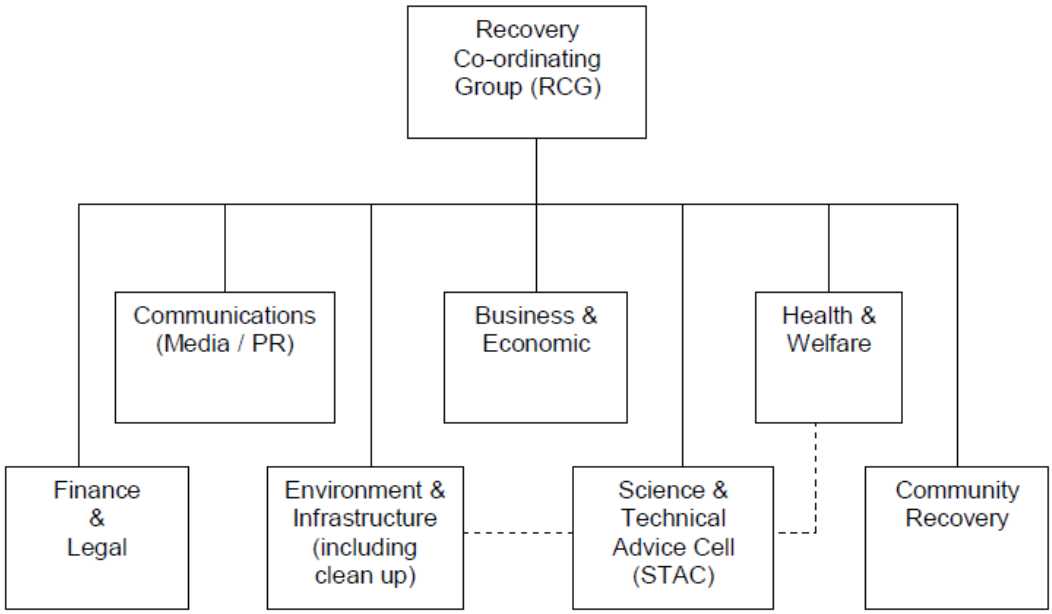


Figure 4 - Recovery Structures and Organisations (taken from Fig 5.2 of Emergency Response and Recovery revised version October 2013)

Local authorities will determine an effective structure proportionate to the nature and scale of the incident within which these functions can be delivered. The Recovery Co-ordinating Group and any sub-group established should be provided with appropriate administrative support.

Experience gained in UK pollution incident response and major maritime exercises has demonstrated that there are **key functions** that will need to be delivered during the recovery phase. These are:

- Operations to clean up the Shoreline.
- Management of the waste created by the spill.
- Health and Safety advice to ensure a safe working environment.
- Procurement of necessary resources.
- Maintenance of accurate records to facilitate cost recovery.
- Environment and public health advice.
- Media management; and
- Management of wider implications, such as impact on local businesses.

The functions could be assigned to an appropriate sub-group within the existing recovery structure identified above, or alternatively, local authorities may decide to establish a Shoreline Management sub-group to sits alongside existing sub-groups. The Shoreline Management Group could be supported by a number of additional functional groups, as shown in the following diagram.

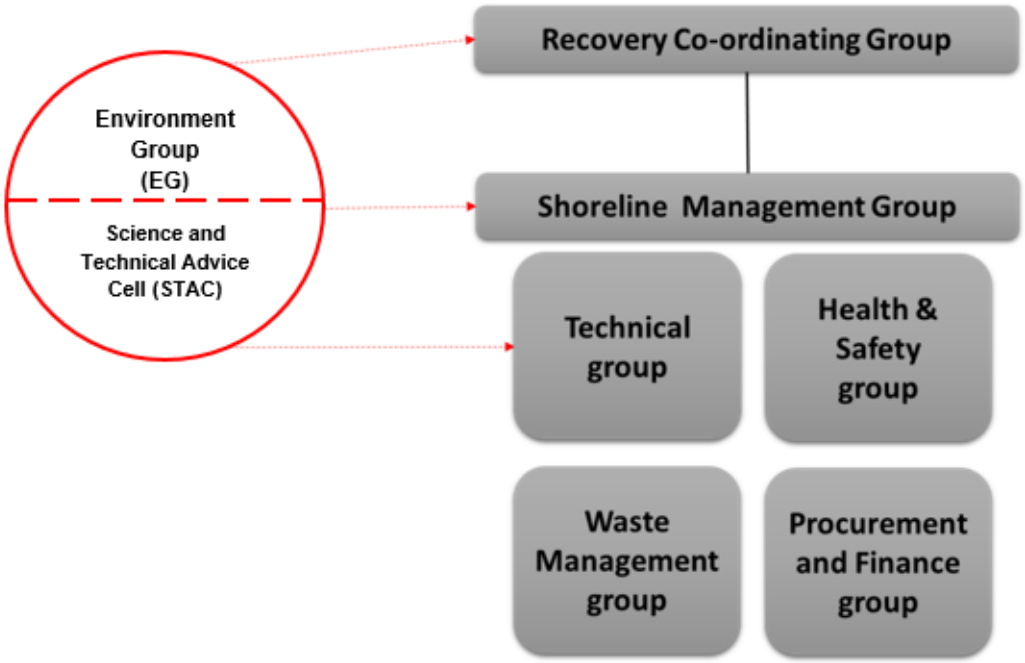


Figure 5 – Functional groups of the Shoreline Management Group

A brief outline of the possible role, responsibilities and membership of each of these groups is included in the STOp notes, more information of which can be found here. Local authorities that plan to manage the recovery to marine pollution using their existing recovery structure should check that it could achieve the key deliverables of these groups.

9.4 Response to Incidents involving more than one county

Where only one county is affected by a spill, the upper tier local authority will establish and manage, in co-operation with the Maritime and Coastguard Agency, a single authority Integrated Emergency Management structure.

In the case of two or more authorities being impacted by a significant spill there will be only one formal Strategic Co-ordination Centre to manage the overarching response to the shoreline clean up. The location agreed between responding agencies. A successful response will rely on a single management team fairly assessing priorities for action and distributing resources according to agreed priorities. The decision on where to establish the Strategic Co-ordination Centre will based on factors such as and which location has the required infrastructure and is best placed geographically to co-ordinate the response.

To ensure sound and fair collective management of the response it is important that a clear and effective system of multi-authority liaison is implemented. This may be achieved by setting up neighbouring authority liaison teams.

10. Training and Exercises

The Civil Contingencies Act 2004 Regulations require local authorities, as Category 1 Responders, to include provision for training and exercises within their emergency plans.

Regular training and exercise events enhance understanding and confidence in emergency response procedures.

Multi-agency engagement and participation on port and harbor authority training events is a convention in Kent.

In those years where bi-annual shoreline pollution response training is not provided Kent County Council will run relevant training events to develop Shoreline Clean-up Assessment Technique (SCAT) capability.

10.1 Training and Exercising Record and Future Programme

Organiser	Title of training/exercise	Type	Date
Kent County Council and Kent Fire & Rescue Service	Water Safety Awareness	Training	July 2010
Kent County Council	Oil Pollution Study Day	Training	Dec 2010
Kent County Council and Kent Fire & Rescue Service	Water Safety Awareness	Training	Jun 2011
Esso, Fisher-German Pipelines and Adler & Allan	Esso/Fisher German Pipelines Live Emergency Response Exercise	Exercise	Oct 2011
Port of London Authority	Port of London Authority Table-Top Oil Pollution Exercise	Exercise	Nov 2011
Kent Resilience Forum	Exercise Manchex 2011	Training	Nov 2012
Port of London Authority and Shell	Exercise Spider	Exercise	Feb 2012
Kent County Council	Shoreline Clean-up Assessment Team training	Training	Oct 2012
Kent Resilience Forum	Exercise Guardex	Exercise	Oct 2012
Thames Estuary Shoreline Pollution group	Shoreline Clean-up and Environmentally Sensitive Habitats	Training	Nov 2012
Adler & Allan	Beach-master training	Training	Sept 2013
Kent County Council	Shoreline Clean-up Assessment Team training	Training	Sept 2014
Kent County Council and Adler & Allan	Beach-master training	Training	Oct 2015
Kent County Council, Adler & Allan and Medway (Peel) Ports	Exercise Beowulf	Exercise	October 2015
Maritime and Coastguard Agency	MCA National Training Course on Oil Pollution Contingency Planning and Response (at Gravesend)	Training	January 2016
Port of Dover (Adler & Allan)	Exercise Church	Exercise	September 2016
Kent County Council	SCAT	Training	October 2016
Kent County Council	Beach-master training	Training	October 2017
Kent County Council	SCAT	Training	October 2018
Kent County Council	SCAT	Training & Exercise	October 2022

Annex A

Key Contacts –

all other phone numbers available to Resilience Direct members only

	Office	Out of Hours
1.	**County Oil Pollution Officer** **Kent County Council** **Natural Environment and Coast Team** Invicta House, County Hall Maidstone ME14 1XX	
2.	**KCC Resilience and Emergency Planning Service** Invicta House, County Hall Maidstone ME14 1XX	via 24 hrs DEPO
3.	**Kent Resilience Team** **Kent Fire and Rescue Service** The Godlands, Tovil, Maidstone ME15 6XB	via DEPO (24 hrs)
4.	**District Oil Pollution Officer** **Canterbury City Council** Military Road Canterbury CT1 1YW	
5.	**District Oil Pollution Officer** **Dartford Borough Council** Civic Centre, Home Gardens Dartford DA1 1DR	
6.	**District Oil Pollution Officer** **Dover District Council** White Cliffs Business Park Dover CT16 3PJ	
7.	**District Oil Pollution Officer** **Gravesham Borough Council** Civic Centre, Windmill Street, Gravesend, DA12 1AU	
8.	**Medway Council Oil Pollution Officer** **Medway Council**	

Gun Wharf, Dock Road,
Chatham, Kent ME4 4TR

9. **District Oil Pollution Officer**
Folkestone and Hythe District Council
Civic Centre, Castle Hill Avenue,
Folkestone CT20 2QY

10. **District Oil Pollution Officer**
Swale Borough Council
Swale House, East Street
Sittingbourne, ME10 3HT

11. **District Oil Pollution Officer**
Thanet District Council
Council Offices, Cecil Street
Margate, CT9 1XZ

12. **East Sussex County Council**
St Mary's House, St Leonards Road
Eastbourne
East Sussex BN7 1SW

13. **Essex County Council**
Emergency Planning & Core Resilience Team
County Hall, Chelmsford
Essex CM1 1YS

14. **Kent Police**
Force Control Room
Police Headquarters, Sutton Road
Maidstone ME15 9BZ
(The FCR will be moving in June 2023 details will be updated when received)

15. **Marine Management Organisation**
PO Box 1275
Newcastle upon Tyne
NE99 5BN

16. **Maritime and Coastguard Agency**
Counter Pollution Branch / HM Receiver of Wreck
First Floor, Spring Place
105 Commercial Road
Southampton SO1 0ZD

HM Coastguard

Langdon Battery
Swingate, Dover CT15 5NA

17. **Environment Agency**
Kent and South London Area Office, Orchard House
London Road,
Addington
Kent ME19 5SH

18. **Natural England** - Kent Team
Natural England
9th Floor International House
Dover Place,
Ashford TN23 1HU
e-mail: marine.incidents@naturalengland.org.uk

19. **Port of London Authority (PLA)**
London Vessel Traffic Services
River House, Royal Pier Road
Gravesend DA12 2BG
VHF Channel 68 and 69

20. **Peel** (**Medway Ports) Ltd**
Medway Vessel Traffic Services
Sheerness Docks
Sheerness ME12 1RX

21. **Folkestone Harbour**
Folkestone Properties Ltd
Port Office, Folkestone CT20 1QH

22. **Dover Harbour**
Harbour House
Dover CT17 9BU

23. **Royal Harbour of Ramsgate**
Harbour Offices, Military Road
Ramsgate CT11 9LG

24. **Whitstable Harbour**
Whitstable, Kent CT5 1AB

25. **International Tanker Owners Pollution Federation (ITOPF) Ltd**
Staple Hall, Stonehouse Court
87-90 Houndsditch, London EC3A 7AX
Contact: Oil Spill Response Co-ordinator

26. **Affinity Water**
The Cherry Garden,
Cherry Garden Lane
Folkestone,
Kent CT19 4QB

27. **South East Water**
South East Water
Rocfort Road
Snodland
Kent ME6 5AH

28. **Southern Water Services**
Southern House, Yeoman Road
Worthing BN13 3NX

29. **Thames Water Utilities Ltd.**
Clearwater Court, Vastern Road
Reading RG1 8DB

30. **Royal Society for the Protection of Birds**
South East Region
Pavilion View, 19 New Road
Brighton BN1 1UF

31. **RSPCA – SE Regional HQ**
Wilberforce Way
Oakhurst Business Park
Southwater
Horsham RH13 9RS

32. **KCC/Medway Council Tier 2 Contractor – Adler & Allan**
Adler and Allan Head Office
80 Station Parade, Harrogate,
North Yorkshire HG1 1HQ

Adler & Allan Tunbridge Wells Depot
Underwood Rise,
Broadwater Lane
Tunbridge Wells
Kent TN2 5RY

Adler & Allan Ports and Harbours Division
Dominion House,
Copse Lane,
Hamble-le-Rice
Southampton SO31 4QB

Annex B

Kent County Council Outline Responsibilities

1. To nominate the County Oil Pollution Officer (COPO) and deputies.
2. To provide a point of contact to receive alerts and warnings.
3. To alert the appropriate authorities and County Council Directorates.
4. When requested, to support district councils with County Council resources.
5. To arrange for external resources for use by the County Council and where appropriate, district councils.
6. Where appropriate establish the County Emergency Centre (CEC) and/or request mobilisation of Integrated Emergency Management structure.
7. To take overall responsibility for co-ordination when more than one district is involved, or when any one district is unable to cope.
8. To maintain financial records of County Council expenditure and make arrangements for funding.
9. To alert and liaise, where appropriate, with government departments, other public bodies and any other organisations, which may be involved in the incident.
10. To exercise any authority which may be delegated by government.
11. To provide arrangements for dealing with the media and the public.
12. To make arrangements for the disposal of waste arising from the incident.
13. To store and maintain oil pollution response equipment or ensure contractual agreement to enable shoreline clean-up.
14. To arrange for the training of personnel in oil pollution response activities.
15. To maintain the Kent and Medway Shoreline Pollution Plan.
16. Co-ordinate shoreline response in the event or threat of pollution from a small vessel(s) stranded close inshore.
17. To support coastal district councils with County Council resources for Tier 2 response.
18. To support the Maritime and Coastguard Agency with County Council resources for Tier 3 response.
19. To liaise with Medway Council where cross border or mutual aid issues arise.

Annex C

Medway Council Outline Responsibilities

1. To provide a response to a Tier 1 or 2 oil pollution incident affecting or with the potential to affect the shoreline within the area administered by Medway Council.
2. To ensure provisions are in place to enable the Council to respond to Tier 1 and 2 Level oil pollution spills.
3. To provide support to MCA in the event of a national Tier 3 oil pollution spill.
4. To nominate and train Medway Oil Pollution Officers (MOPOs), Beachmasters and SCAT officers.
5. To ensure equipment is available and maintained for officers responding on the shoreline.
6. To provide a point of contact to receive alerts and warnings.
7. To alert neighbouring district councils if the spill is likely to impact their area.
8. To work with responding organisations to mitigate the impacts of the oil. pollution spill.
9. To work with KRF organisations to ensure an effective response to an incident that crosses local authority boundaries.
10. To alert and liaise, where appropriate, with government departments, other public bodies and any other organisations, which may be involved in the incident.
11. To exercise any authority delegated by Central Government.
12. Co-ordinating shoreline response in the event or threat of pollution from a small vessel(s) stranded close inshore within the administrative boundaries of Medway Council.
13. To make arrangements for the collection and disposal of oily waste arising from the incident.

Annex D

District Council Outline Responsibilities

1. To nominate a District Oil Pollution Officer (DOPO) and deputies.
2. To pass all reports of oil pollution on-shore/floating off-shore to HM Coastguard and the KCC Duty Emergency Planning Officer (DEPO).
3. To provide a point of contact to receive alerts and warnings.
4. To maintain a log of events.
5. To carry out reconnaissance and reporting as required.
6. To establish the District Emergency Centre if necessary.
7. To seek prior approval from the Emergency Planning Manager for all grant aided expenditure e.g., clean-up operations, equipment etc.
8. To deal with oil pollution of beaches/foreshores and shoreline.
9. To liaise with the County Oil Pollution Officer (COPO) for the supply of additional resources.
10. To make arrangements for the clean-up of private beaches.
11. To provide assistance to neighbouring districts where required.
12. To ensure appropriate personnel are trained in oil pollution response.
13. To make arrangements for funding and to maintain financial records of expenditure.
14. To provide a liaison officer, if required, at the County Emergency Centre.
15. To store and maintain equipment, protective clothing funded under grant aid.
16. To maintain and update District Oil Pollution Plan.
17. To support Kent County Council with district council resources for Tier 2 response.
18. To support the Maritime and Coastguard Agency with District Council resources for Tier 3 response.
19. To liaise with Medway Council where cross border or mutual aid issues arise.

Annex E

AGENCY RESPONSIBILITIES

Maritime and Coastguard Agency (MCA)

The Maritime and Coastguard Agency is an Executive Agency of the Department for Transport and is a Category 1 Responder as defined in the Civil Contingencies Act 2004. It is responsible for the developing, promoting and enforcing high standards of maritime safety and pollution prevention for ships, and when pollution occurs, minimizing the impact on UK interests.

The Maritime and Coastguard Agency comprises inter alia HM Coastguard and the Counter Pollution and Response Branch. Their individual responsibilities are: -

HM Coastguard

- To provide a 24-hour service for receiving, assessing and transmitting onwards pollution reports - POLREPS (this includes alerting Counter Pollution and Response Branch).

Counter Pollution and Response Branch

- To arrange central government response to oil pollution at sea and to support local authorities with the on-shore response.
- To maintain national stockpiles of at-sea and on-shore oil pollution response equipment.
- To provide technical/scientific advice, guidance and support to local authorities.
- To fund central government research and development; and
- To arrange training courses for local authority personnel.

Kent Police

- To take necessary action to ensure that counter-pollution work is not impeded by traffic or crowds; and
- If required, to liaise with the Receiver of Wrecks, MCA and local authorities on safety and security at cargo pollution incidents.

Department of the Environment Food and Rural Affairs (DEFRA)

- To administer the Food and Environment Protection Act 1985, as it relates to exempting the use of dispersants at sea oil spill clean-up operations.
- To advise on the use of approved low toxicity dispersants and their potential impact on fisheries.
- To protect UK fisheries, breeding grounds and the safety of consumers of marine products; and
- To arrange toxicity testing and licensing of dispersants.

Natural England

The Sussex and Kent Area Team of Natural England is responsible for providing off-site advice relating to nature conservation in Kent. This includes advising on:

- Nature conservation importance.
- Including location of all designated sites and their site features.
- Priority habitats and species (as notified under the Natural Environment and Rural Communities Act (NERC (2006)) and Wildlife and Countryside Act (W&CA (1981)).
- Sensitivity of features/habitats/species to marine pollution.
- On the appropriateness of actions to be taken in the event of an oil spill; and
- Including monitoring the effectiveness of response actions.

Environment Agency

The Environment Agency is able to assist with:

- Protecting the tidal reaches of main rivers.
- Support operational response and enforcement against sewage pollution of riparian and marine environment.
- Providing advice on the water pollution control aspects of contaminated waste disposal; and
- Providing limited assistance to local authorities with clean-up equipment/manpower.
  Note: *The Environment Agency has a regulatory role in regard to waste management and water quality. As part of a response, they may initiate investigations and consider proportionate enforcement. In so doing support may be sought from partner organisations.*

Port of London Authority (PLA)

- The Port of London Authority is responsible for the clean-up of oil spillages affecting foreshore and jetties/wharves/structures owned by the PLA in a geographical area specified in the Port of London Act 1968 (as amended). The limits start at the landward limit and extend down both banks of the River Thames at mean high water level and end at the seaward limits.
- The PLA is the statutory oil spill response authority for the Tidal River Thames, and in fulfilling this role will endeavour to, in collaboration with other responding organisations:
  - Eliminate oil pollution where an oil spill has occurred, or where that is not possible, reduce the amount of pollution to a minimum.
  - Restore the situation as quickly as possible with minimum disruption to the ecology.
  - Dispose of the waste oiled material with least impact to the environment; and
  - Set and maintain environment standards that exemplify best industry practice and comply with all environmental legislation.

    Thames Oil Spill Clearance Association (TOSCA)
  - The PLA has responsibility for dealing with floating oil on the river within its area of jurisdiction. This includes all creeks and rivers draining into the River Thames.
  - The PLA can mobilise the Thames Oil Spill Clearance Association (TOSCA) The area of operations under TOSCA encompasses the waters of the River Thames from Tower Bridge to the former seaward limit of the PLA between Havengore Creek and Warden Point on the Isle of Sheppey.
  - TOSCA has a range of booms, skimmers, related equipment and absorbent materials. This equipment is stored in a specially-converted barge which also contain holding tanks for any recovered oil to be temporarily stored. This barge is moored near Denton Wharf in Gravesend Reach; and
  - TOSCA also has two high-speed vessels to bring equipment to the scene to clear up floating oil. The main recovery vessel, ‘Recover’, can recover various oils and can be used in both river and the estuary. It has two holding tanks which can each hold 4 tonnes of recovered oil.

International Tanker Owners Pollution Federation Ltd. (ITOPF)
ITOPF was originally established to administer the Tanker Owners Voluntary Agreement for Oil Pollution (TOVALOP). It has a small staff of technical experts who can:

- Provide technical advice on clean-up techniques to tanker owners and their insurers; and
- Provide advice to central and local government on clean-up measures and compensation claims.

United Kingdom Petroleum Industry Association (UKPIA)
The Association can:

- Offer advice, via its Regional Information Co-ordinators during an oil spill; and
- Provide access to oil industry expertise.

Annex F

Animal Welfare Considerations

Clean-up of contaminated Wildlife following a maritime pollution incident

The Secretary of State places the responsibility for wildlife affected by oil or other pollutants onto Natural England, the Statutory Nature Conservation Body for England. Natural England co-ordinate the provision of the best available information on wildlife interests, habitats that support them and the threats to both by providing advice on the location and sensitivity of designated sites and priority habitats and species.

The specific role of dealing with wildlife affected by oil or other pollutants is placed onto the RSPCA and RSPB by Natural England. Detailed roles and responsibilities for each agency can be found in the Marine and Coastguard Agency National Contingency Plan for Marine Pollution from Shipping and Offshore Installations.

In the event of a major incident, the RSPCA will establish a system for the collection, triage and transfer of oiled wildlife to their wildlife centres. A facility for the rehabilitation and recovery of wild animals affected by oil or other pollutants is provided at the Mallydams Wood Wildlife Centre near Hastings. Animals would also be sent to Mallydams for initial assessment and treatment.

Note: *For further detailed information please see the KCC Guidance Note for Dealing with Stranded Whales, Dolphins and other Large Marine Wildlife on Kent Coast and Kent Resilience Forum Animal Evacuation and Shelter Plan.*

Roles and Responsibilities

RSPCA
When alerted by Natural England during a marine pollution incident, the RSPCA have the responsibility to.

- Agree the procedures for the recovery of live birds and other wildlife casualties with the relevant nature conservation agency.
- Where appropriate, supply equipment to help recovery of live casualties.
- Co-ordinate the treatment and rehabilitation of wildlife casualties.
- Provide the Natural England with details of the recovery, treatment and rehabilitation of wildlife casualties; and
- Agree a protocol with the Natural England for the marking, release and (where possible) monitoring of cleaned wildlife.
- Have oversight of any spontaneous independent Bird Charities that attend events

RSPB
In support of the response, the RSPB will.

- Survey any birds in the danger area and monitor avian impacts.
- Advise on how the oil or other pollutant should be cleaned with least risk to birds; and
- Advise the RSPCA on the location of live oiled birds in need of cleaning and rehabilitation.
- Have oversight of any spontaneous independent Bird Charities that attend events

Public Advice

Members of the public are not encouraged to rescue wildlife affected by oil or other pollutants. Instead, members of the public should immediately report the location and number of affected animals directly to the RSPCA using their 24 hour help line.
There are many welfare and health and safety issues to consider:

- Experience and Training - RSPCA staff are experienced and specially trained in the capture of wildlife, thus minimising potential further trauma to the animal.
- Triage - RSPCA staff can provide triage at the beach (and potentially euthanasia) and have local facilities which are geared-up to provide care to affected wildlife.
- Personal Protective Equipment (PPE) - Some pollutants can cause irritation or burning to the skin and fumes may be noxious. RSPCA staff are issued with personal protective equipment (PPE) to protect them from such hazards.
- Insurance - Although some local wildlife groups may have suitable PPE, they may not have appropriate insurance to cover their volunteers.
- Tides - Volunteers may not be aware of the tide table for the area and may become stranded attempting a rescue. A volunteer may also unknowingly pursue an animal into areas that are dangerous to the animal and themselves; and
- Risk of injury from contact with wildlife – Many bird species, including grey heron, larger gulls, geese and swans are strong animals with potentially dangerous beaks, and must not be handled by inexperienced personnel. Further, marine mammals such as common and grey seals are large, powerful animals capable of inflicting serious injury. RSPCA staff receive specialist training and are issued with personal protective equipment (PPE) to protect them from such hazards.

Avoiding Disturbance and Direct Damage to Wildlife Habitats
Care must be taken to avoid damage to wildlife and habitats during shoreline pollution clean-up response interventions. Environmental seasonal sensitivity information is incorporated into zonal mapping information found within district plans and part II of this document.

Disturbance to semi-natural areas must always be minimised as far as is possible, with equipment, contaminated waste and parking areas clearly sign-posted and marked out using areas of hard-standing or similar man-made features, rather than semi-natural substrates. Where access and other practical constraints mean that impingement into semi-natural areas cannot be avoided a dynamic assessment of environmental sensitivity must be undertaken, with extent of haul roads, storage and car parking minimised, clearly sign-posted and robustly demarcated.

Annex G

Pollution Reports (CG77- POLREP) and POLREP Pro-forma

	POLREP No DTG
A	Classification of report. (I) Doubtful: (ii) Probable: (iii) Confirmed:
B	Date and time pollution observed/reported: Identity of Observer/Reporter
C	Position and extent of pollution
D	Tide, wind speed and direction
E	Weather conditions and sea state
F	Characteristics and appearance of pollution
G	Source and cause of pollution
H	Details of vessels in the area
J	If photographs have been taken or samples obtained
K	Remedial action taken or intended
L	Forecast of likely effect of pollution
M	Names of those informed other than addresses
N	Any other relevant information

To: MCA – MRCC **Copy to:** Agencies as required **From:** Kent County Council

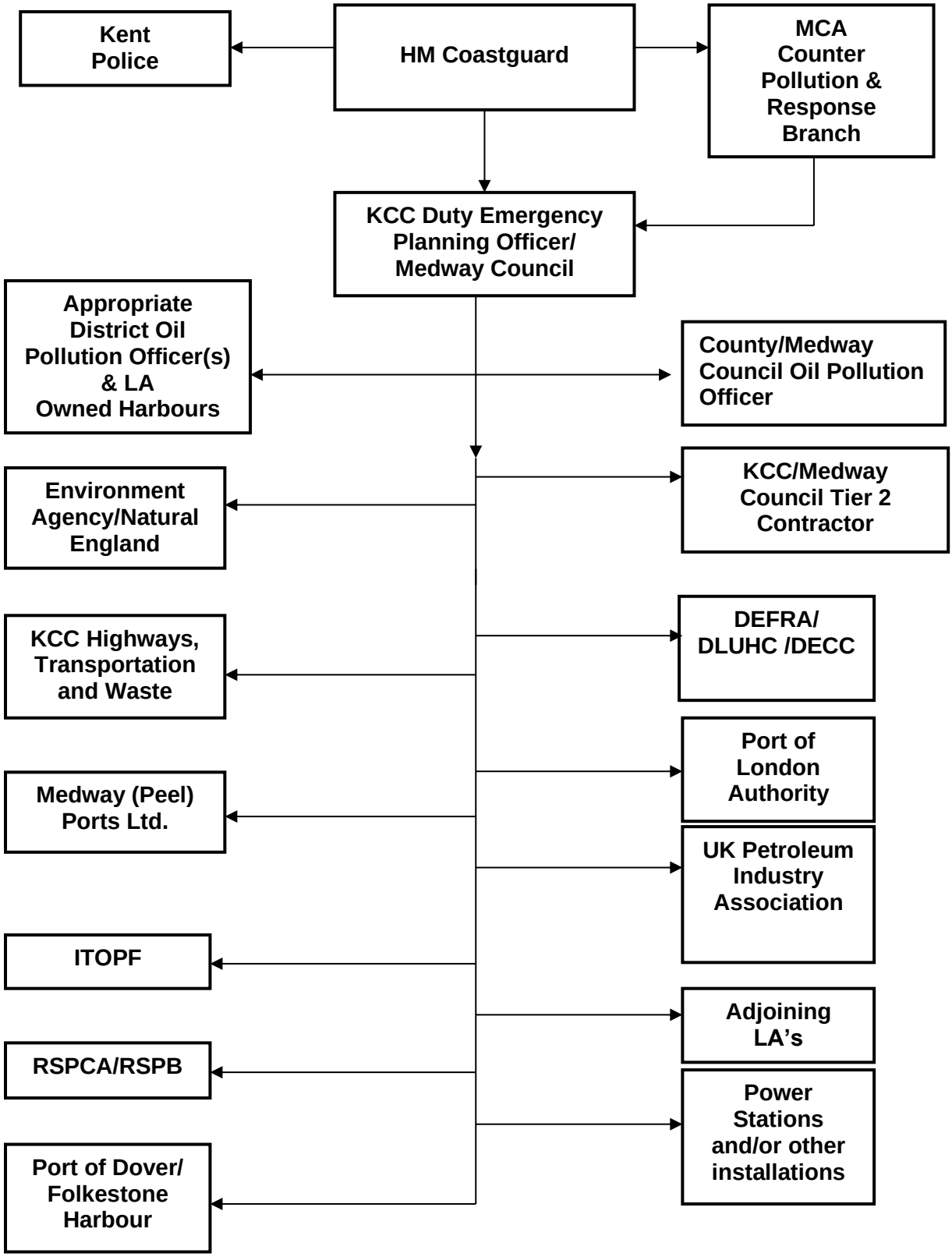
Part 1 – Information which should be provided in an Initial Pollution Report
Classification of report: *(*delete as necessary)* *doubtful *probable *confirmed
Date: **Time pollution observed:** **Identity of observer/reporter:**
Position of pollution*: (latitude/longitude, range and bearing from prominent point of land)* **Extent of pollution in litres/barrels/tonnes:** **Size of polluted area:** *(Estimated amount of pollution, e.g., size of polluted area, number of tonnes of oil spilled; or number of containers, drums, etc. lost. When appropriate, give position of observer relative to pollution).*
Wind speed (knots): **Direction from:** **Tidal status at time of pollution observation (after/before HW/LW):**
Weather: **Sea state:** **Wave height (metres):**
Characteristics of pollution: **Type:** *(crude, diesel, garbage, etc.)* **Appearance:** *(liquid, solid, sludge, etc.)*
Source of pollution: *(from vessel or other)* **Cause of pollution:** *(Apparent deliberate discharge or casualty. If the latter, give a brief description. Where possible name, type, size, nationality and Port of Registry of polluting vessel. If vessel underway, give course, speed and destination if known)*

Detail of vessels in the area: *(To be given if the polluter cannot be identified and the spill is considered to be of recent origin)*
Photographs taken: *(*delete as necessary)* *yes/*no **Sample taken for analysis:** *(*delete as necessary)* *yes/*no
Remedial action taken / intended to deal with spill:
Forecast of likely effect of pollution: *(e.g., arrival on coastline with estimated timing)*
Names of those informed other than addresses:
Any other relevant information: *(e.g., names of other witnesses, references to other instances of pollution pointing to source)*

Part 2 – Supplementary information to be provided later (this part may be disregarded when POLREPS are for UK internal distribution only)
Results of sample analysis:
Results of photographic analysis:
Results of supplementary inquiries: *(e.g., Inspection by surveyors, statements from ship's personnel, etc. if applicable)*

Annex H

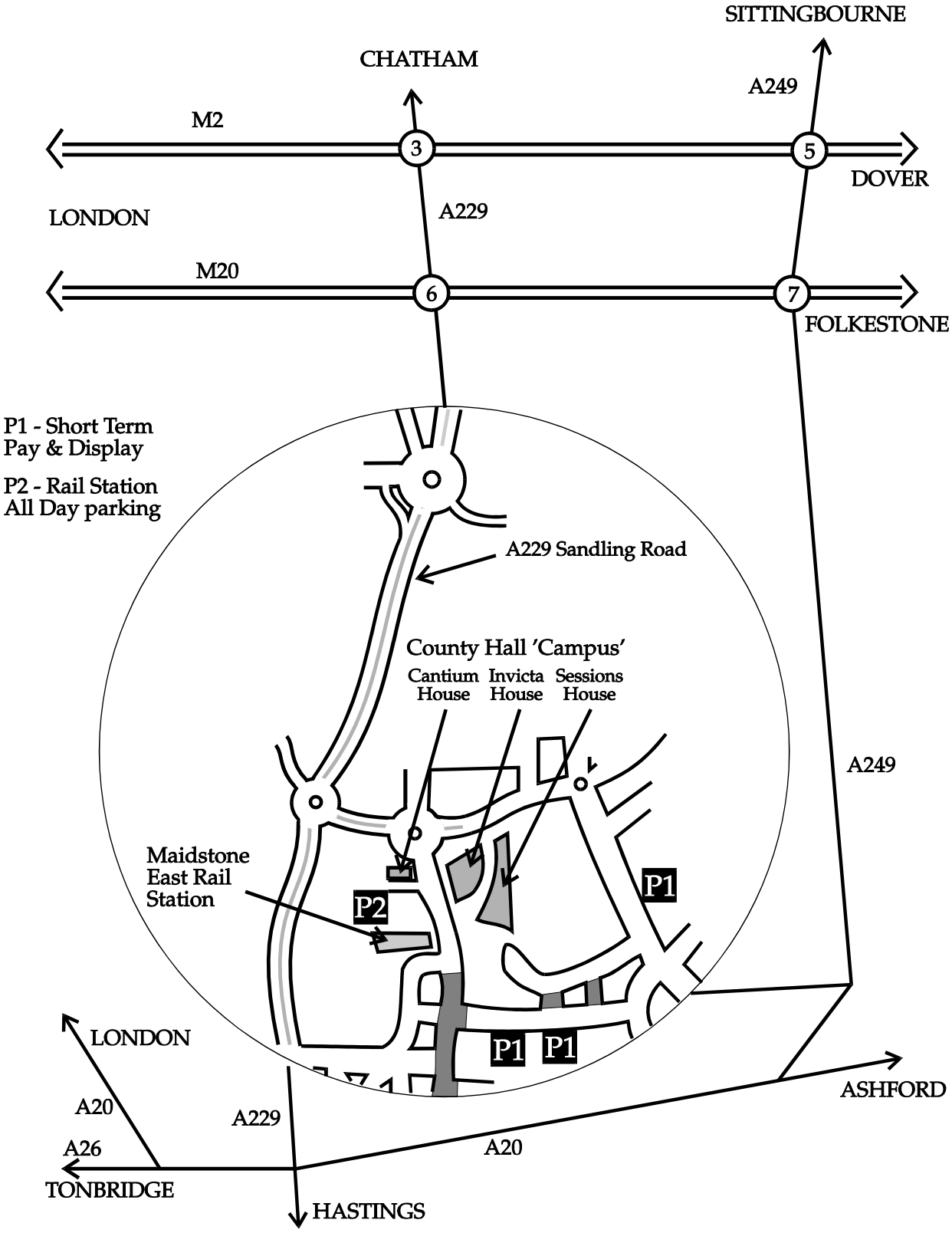
Oil Pollution Alerting Chart



Annex I

Kent County Council County Hall Location Map

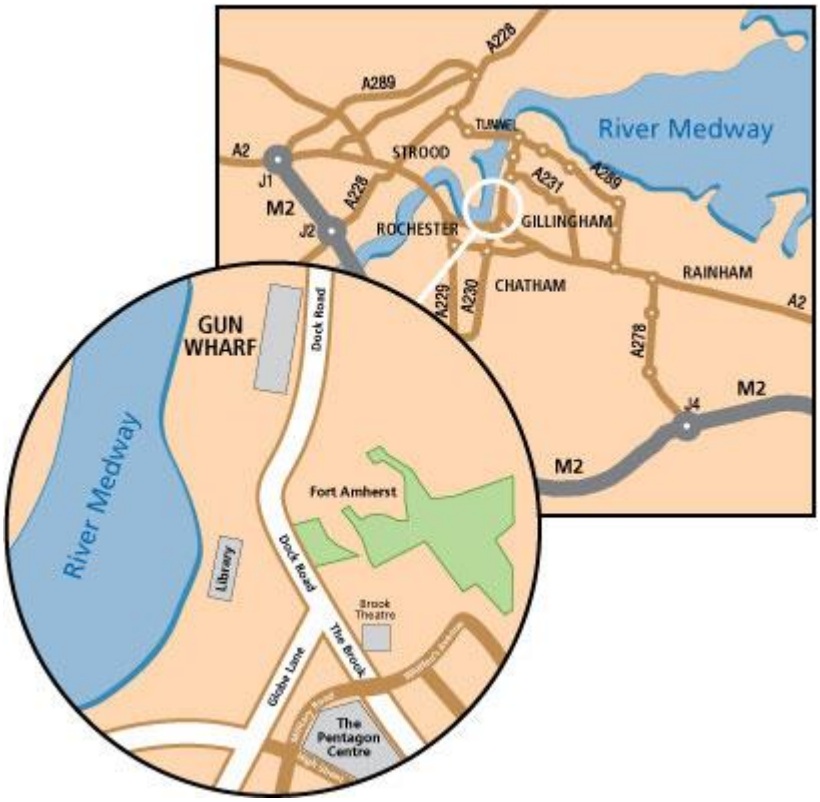
County Road, Maidstone, Kent, ME14 1XQ



Annex J

Medway Council Location Map

Medway Council, Gun Wharf, Dock Road, Chatham, Kent ME4 4TR



ANNEX K

Financial Arrangements – Generic

Liability and Compensation for Pollution Damage
Dealing with marine pollution, whether at sea or on shore, can be protracted and expensive. Initially, the costs of clean-up operations fall on the bodies incurring them.

What follows is a brief description of the ways that those involved in clean-up operations can later recover their costs.

The ease with which responders can obtain compensation depends on the type and source of pollution involved. Currently there are five distinct cases:-

- Where persistent oil carried by a tanker causes pollution, compensation is available under an international compensation regime.
- Where persistent oil carried by any other type of ship causes pollution, there are special rules in UK legislation designed to make it easier for claimants to obtain compensation.
- Where a substance carried by a ship other than persistent oil causes pollution, claims are subject to the normal rules of civil and common law.
- Where pollution is caused by an off-shore installation, claims are subject to special rules imposed on operators as a licensing requirement.
- Where there is no identified source for the pollution, claimants can obtain no compensation unless they can prove that the source of pollution was a tanker.

Note: The definition of persistent oil is highly technical. Crude oil and the heavy fuel oil used by ships are both persistent oils. Aviation fuel and petrol are non-persistent oils.

Pollution caused by persistent oil carried in tankers
Two international conventions establish the international compensation regime for oil pollution damage from tankers:

- The International Convention on Civil Liability for Oil Pollution Damage (the "Civil Liability Convention"); and The International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage (the "Fund Convention").

The former convention deals with the liability of tanker owners. The latter establishes the IOPC Fund. The Merchant Shipping Act 1995 implements the regime in the UK.

Under these conventions, the tanker owner and the IOPC Fund are strictly liable for the costs of reasonable clean-up operations. Strict liability means that the claimant need not prove fault to obtain compensation. The tanker owner and the IOPC Fund may escape liability only if they can prove that one of a limited number of exceptional circumstances (for example, an act of war) caused the damage.

Types of clean up and emergency response claims covered
Following an oil spill, the tanker owner and the IOPC Fund generally pay compensation for the cost of reasonable response measures. These might include measures taken to clean up the oil at sea, to defend sensitive resources, to clean shorelines and coastal installations and

to dispose of any recovered oily debris. Claims for any consequential loss or damage caused by such measures should also be eligible for compensation. For example, if clean up measures result in damage to a road, pier or embankment, the cost of any work carried out to repair the damage should be an admissible claim.

Admissible claims for clean-up operations include the cost of personnel and the hire or purchase of equipment and materials. The cost of cleaning and repairing clean up equipment and of replacing materials consumed during the operation is also admissible. However, if the responders bought the equipment used for a particular spill, insurers and the IOPC Fund make deductions for the residual value.

Special rules apply where public authorities clean up an oil spill using permanently employed personnel, or ships, vehicles and equipment that they own. In these circumstances, only the additional costs incurred by those authorities would normally be an admissible claim. Additional costs means expenses that arise solely because of the response to the incident and that the responders would not have incurred had the incident and related operations not taken place.

An area of potential dispute is the extent to which authorities may also claim for fixed costs (that is, costs which would have arisen even if the incident had not occurred). These may include normal salaries for permanently employed personnel, capital costs of ships and other equipment, and the costs of maintaining specialised clean up resources on permanent standby under contract. Insurers and the IOPC Fund normally pay compensation for a reasonable proportion of such fixed costs. However, the costs must correspond closely to the clean-up period in question and not include remote overhead charges.

Compensation may be available for the costs of environmental advice. If the aim of the advice is to assist the clean-up operation (for example, by helping to identify the most appropriate response techniques in given circumstances), its costs generally qualify for compensation. However, the costs of general environmental monitoring or longer-term studies to determine the impact of a spill do not normally qualify for compensation. The only exception is when such studies concern damage that clearly falls within the definition of "pollution damage" used in the Civil Liability and Fund Conventions. Because of this distinction, it is important that those involved in the environmental aspects of a spill keep careful records that distinguish between operational activities and scientific studies. Anybody contemplating undertaking a scientific study should seek advice on the admissibility of a claim for its costs at an early stage.

Compensation is also available in cases where there is no oil spill, if there is a grave and imminent threat that pollution damage might occur. For example, the costs of mobilising clean up resources to the site of a tanker aground on a rocky coastline in bad weather would normally be admissible, even if a successful salvage operation subsequently prevents any oil spilling.

Operation of the international oil pollution compensation fund (IOPC Fund)
Any person in a State Party to the Fund Convention who receives an annual quantity of more than 150,000 tonnes of crude oil and heavy fuel oil following carriage by sea is liable to contribute to the IOPC Fund. These contributions finance compensation payments and administrative expenses. The Fund's Director issues invoices to contributors. The size of each contribution is proportional to the annual quantity of oil received. The Fund's assembly sets a levy per tonne for each incident, based on estimates of the total amount of claims. The Assembly consists of all States Parties to the Fund Convention.

States Parties meeting within the Assembly or Executive Committee approve the settlements of claims against the IOPC Fund. Where claims do not give rise to new points of principle

and relatively small amounts are involved, however, the Director can settle claims entirely without prior approval. The secretariat of the IOPC Fund co-operates closely with the P&I club involved in an incident in handling claims and, for example, in appointing joint experts.

The IOPC Fund has developed a series of criteria for establishing whether claims are eligible for compensation. In relation to clean up operations, the fact that a government or other public body decides to take certain measures does not automatically mean that the Fund will reimburse the cost of those measures. The essential criterion is the technical reasonableness of the measures, based on an assessment of the facts available at the time of the decision to take them. The Fund does not accept claims if the claimant could have foreseen that the measures taken would be ineffective in the particular circumstances of the incident. On the other hand, the fact that the measures prove to be ineffective is not in itself a reason to reject a claim for the costs incurred.

More generally, the following criteria would apply.

- The cost of the measures should be reasonable.
- The cost of the measures should not be disproportionate to the results achieved or the results which one could reasonably; and
- The measures should be appropriate and offer a reasonable prospect of success.

The IOPC fund's claims manual summarises its criteria in more detail. This manual, and a general information booklet, are available from:

International Oil Pollution Compensation Fund:
Portland House
Stag Place
LONDON SW1E 5PN
Tel: 020 7592 7100
Fax: 020 7592 7111
Email: info@iopcfund.org
Website: www.iopcfund.org

Pollution caused by persistent oil carried in ships other than tankers
At present, there are no comparable international arrangements on liability and compensation for damage caused by persistent fuel oil carried in ships other than tankers. The UK has introduced national legislation to make owners of ships other than those to which the Civil Liability Convention applies strictly liable for pollution damage caused by persistent oil. This legislation makes it simpler for claimants to recover the costs of damage caused by the fuel oil carried by non-tankers. They do not have to prove that the ship owner was at fault.

Unlike tanker owners, other ship owners may limit their liability to amounts determined in accordance with the Convention on Limitation of Liability for Maritime Claims 1976. They are not required to maintain liability insurance.

Pollution caused by pollutants other than persistent oil
There is currently no statute dealing with liability and compensation for pollution damage caused by substances other than persistent oil. In May 1996, however, a diplomatic conference convened by the International Maritime Organisation adopted the Convention on Liability and Compensation for Damage in Connection with the Carriage by Sea of Hazardous and Noxious Substances.

The UK has signed this convention. However, it is not expected to come into force for some time. In the meantime, the ordinary rules of civil common law continue to apply to liability and

compensation for pollution damage caused by substances other than persistent oil carried on ships.

Pollution caused by offshore installations
DTI imposes requirements on operators of offshore oil and gas installations as part of the development approval process. Operators must be members of the Offshore Pollution Liability Association Limited (OPOL) or have liability coverage of the same value as that offered by OPOL.

OPOL manages the provision of the "Offshore Pollution Liability Agreement", under which participating oil companies accept strict liability for pollution damage and remedial measure up to a maximum amount per incident. There is a periodical review of the amount of compensation available to take account of changes in risk and inflation. The amount is currently US$120 million per incident, with a maximum deductible of US $1 million per incident.

These arrangements would only come into effect if the operator were unable to meet claims from its own resources. Moreover, where an operator is a large company with substantial resources, DTI may not require membership of OPOL. For other operators, DTI may accept other arrangements providing cover similar to OPOL; for example, this could be through some form of insurance cover.

The OPOL agreement covers hybrid craft such as Floating Production, Storage and Offloading Vessels (FPSOs) and Floating Storage Units (FSUs) while on station. It also covers such craft when moving: if they are moving for operational reasons, not to carry oil as cargo.

Pollution from an unidentified source
Generally, claimants can only obtain compensation if they know its precise source. However, there is one exception to this. The IOPC Fund pays compensation for reasonable clean-up costs if the claimant can prove (for example, by sophisticated chemical analysis) that the pollution resulted from a spill of persistent oil from a tanker.

Annex L

Oil Pollution Response Equipment

1. Oil Pollution Response Equipment Held by KCC/Medway Council Contractor

   The KCC and Medway Council clean-up contractor maintains a range of oil pollution response equipment.

2. Oil Pollution Response Equipment Held by District Councils

   Each District is responsible for holding its own stock of equipment as necessary.

3. Availability of MCA and PLA Stockpile Equipment

   When the local authority can cope with an oil spill, MCA scientific/technical advice will be free of charge. MCA will deploy staff to local emergency centres if appropriate. Items of MCA specialised shoreline clean-up equipment will be made available on a repayment basis.

   If the incident outstrips the local authority's resources, MCA will, at the request of the local authority, consider establishing an Integrated Emergency Management structure. If established, MCA will bear the cost of resources it makes available from its own stockpiles together with other resources it deploys. Local authorities will continue to bear the cost of any resources that they make available. The stockpile list is approximate at any point in time as equipment may be moved temporarily from site to site. Response times for the stockpile are to be anywhere on the mainland within 12 hours. Mobilisation times are half an hour during the working day and two hours at night. Mobilisation of MCA equipment can only be authorised by Maritime and Coastguard Agency staff.

   PLA clean-up equipment and personnel may be made available for shoreline clean-up purposes on the Thames Estuary coastline. Requests for such interventions should be via the Duty Emergency Planning Officer who will liaise directly with the Port of London Authority.

4. Environment Agency Equipment

   The Environment Agency maintain some clean-up and other equipment.

5. Port and Harbour Authority Equipment

Ports and harbour authorities maintain some clean-up and other equipment. Please see specific authority pollution clean-up plans.

Annex M

Disposal of Contaminated Waste

Introduction

Kent County Council and Medway Council have a responsibility to provide technical support and make arrangements for the safe disposal of oil contaminated waste arising from any shoreline pollution incident affecting the Kent and Medway coastline.

When a pollution incident involving pollution on the shore of the County has been reported the following response procedure should be implemented. It will be important to set in motion plans to dispose of any oil contaminated or hazardous waste permanently. Although oil pollution on the beach is a very sensitive subject with the public there is nothing to be gained in hasty and improper storage and disposal of waste. This will simply transfer the problem elsewhere and may add to the overall pollution. Early removal of the pollutant from the natural environment is important, however.

Any waste generated from such an incident should be disposed of according to the Best Practicable Environmental Option (BPEO). This means that wherever possible the waste should be used to benefit the environment, but if this is not possible it should cause the minimum detriment to the environment. In the case of waste oil, it is a potential fuel with a high calorific value. Wherever possible the oily waste should be disposed of in a manner that reclaims the oil for onward use or in a way that uses the calorific value to produce energy, e.g., incineration.

The final resort will be disposal to landfill, subject to the provisions of the EU Landfill Directive and it is accepted that in some cases this will be inevitable. However, it may be that some pre-treatment would reduce any likely environmental impact after the waste is deposited in the landfill.

The waste may be in two distinct physical states - solid or liquid.

Storage and Disposal of Liquid Waste

If oil is washed ashore in any sizeable quantity, it is likely that some liquid oil will be collected. This material is likely to contain seawater and possibly dispersant. The immediate problem will be suitable means of storage of the liquid. The preferred option will be to pump the material straight into tankers for removal off-site. This will necessitate a potentially large fleet of tankers being on call. A second option would be the construction of temporary holding lagoons.

The difficulty in constructing suitable lagoons should not be under-estimated. It would be necessary to excavate a fairly large area and then to install an impermeable liner that is resistant to the liquid to be stored therein.

Properly installing a liner is a technical job and one which requires careful supervision. Any weaknesses in the liner could result in groundwater pollution.

If it is considered necessary to construct a lagoon the Environment Agency (EA) should be contacted for advice. Only after that advice has been given should work commence. A stock of suitable liner material and liner-welding equipment may need to be held for such occasions subject to problems of deterioration. Alternatively, arrangements may be made to obtain such material quickly. Liners are readily available from builders' merchants in the form of impermeable membranes used beneath house foundations.

Once oil has been placed in the lagoon the primary objective is to remove and dispose of it within the shortest time-scale.

In addition to the potential pollution problems that lagoons create, there are health and safety considerations. The lagoon should be securely fenced, and warning notices may be required. The Health and Safety Executive will assist with any enquiries on this subject.

The Dungeness area comprises a shingle substrate within a highly sensitive groundwater zone and the construction of lagoons in the area is not appropriate. If oil is spilled and washed ashore in this area, immediate action should be taken to pump the liquid away to tankers as detailed above. Failing this the liquid should be removed to a holding lagoon situated outside the sensitive zone. For reference purposes the zone extends south of a line between Camber and Lydd. The Environment Agency can provide more details on this area.

Whether a lagoon is used or not, the problem then arises of what to do with the oil waste? There are a number of waste disposal sites that are licensed to accept oil and oil contaminated wastes. Details of these sites can be obtained from the Environment Agency. It is the legal responsibility of those producing the waste to ensure the site it is destined for is properly licensed to accept it. It is also a legal requirement that, subject to a small number of exceptions, any carriers of waste are registered under the Control of Pollution (Amendment) Act 1989, with the Environment Agency.

Storage and Disposal of Solid Waste
For waxy mineral oil, the only option is incineration or burial in lined pits, depending on the toxicity of this paraffin based pollutant.

Other solid pollutants are likely to consist of sand, earth, shingle and possibly some small rocks which are contaminated with oil.

There may be hundreds of tonnes of this material in a large incident and the problems posed in disposing of this waste may inevitably lead to the need for stockpiles.

Stockpiles
It is recognised that any large oil spill will probably necessitate a temporary stockpile. Unlike the liquid fraction, solid waste need not always be placed within a lined lagoon. The very nature of the waste will reduce the amount of oil leaching into the soil. However, the stockpile should be removed and disposed of as quickly as possible. In some cases, the waste may contain enough oil to create haulage problems. It may be that specialist vehicles or vehicles specially adapted to contain sludge will be required.

If significant leaching of the oil over several weeks or months is likely from the stockpile, serious consideration should be given to whether a liner should be placed under the stockpile. This will need careful thought in design. Bunds would be required to prevent uncontrolled liquid run-off. Heavy plant will damage any liner unless the design is adequate.

In some areas there may be a low permeability soil nearby, e.g., alluvial clay is present in some areas of the North Kent coast. With the prior agreement of the EA, a stockpile could be created using the properties of the underlying soil to retard leaching rather than constructing a basal liner.

The final decision on where to site any lagoon or stockpile should only be taken after advice has been provided by the Environment Agency.

Summary of Action to be taken as a result of an Oil Pollution Incident:

- Remove liquid fraction direct to tankers if practicable.
- If lagoons are used for liquid fraction they should be properly lined after consultation with the Environment Agency.
- The liquid fraction should be removed from lagoons as soon as possible.
- Wherever possible the waste should be taken to a site that will make use of it rather than a landfill site.
- No lagoons or stockpiles should be created south of a line from Camber to Lydd.
- Stockpiles of solid material will often be necessary.
- Any stockpiles should be as short-lived as possible.
- A basal liner should be considered if considerable leaching of oil is likely from a stockpile.
- Solid waste may require specially designed vehicles.
- Solid waste will only usually be accepted at certain landfill sites.
- Before finally deciding on the location of a lagoon or stockpile consult the Environment Agency.
- If in doubt, contact the Environment Agency.

Below are some guidelines prepared by the Environment Agency concerning the identification of temporary storage sites, which includes a site assessment form.

Guidance notes on identifying temporary storage sites

Identifying a suitable location: Storage facilities should be located with easy access to public roads, but close to the centre of clean-up operations. Easy access will also be required from the beach and firm ground adjacent to the temporary holding area is essential to allow access for tankers and removal vehicles. Car parks at the head of beaches are ideal locations as they have easy access and can be secured to keep members of the public out.
If using the beach, the storage area must be sited above the high tide mark.

Agency advice and approval must be sought on the location of these sites. The construction of storage lagoons on Dungeness beach would, for example, be unacceptable due to the risk it would pose to the highly sensitive groundwater zone. A clean up on these shores should therefore involve taking the waste immediately away from the area e.g., by tanker or at least moved to a holding area located outside of the sensitive groundwater zone. To avoid enforcement action being taken by the Agency the use of temporary sites must demonstrate that the storage or treatment of polluted material at the temporary sites is proportionate to the requirements of the emergency and in the public interest.

Before a temporary storage site is established the 'Assessment Form for Temporary Holding area for Oily Waste' should be completed following the guidelines given below.

Assessment Form: The assessor must visit and assess the site prior to a temporary storage area being set up. Access to the beach, access to the main road network, the suitability of the proposed storage area, the habitat, protected sites and source protection zones should all be assessed. Extra pollution prevention measures may need to be put in place to prevent pollution to watercourses and the area around the storage site.

Surface: Important as this will determine ease of access to the beach, holding area and route to the main road. Will also determine what type of temporary storage can be used.

Adjacent Water Bodies: If there is a water body adjacent could it be polluted by a poorly sited storage area?

Source Protection Zone: These are zones to protect groundwater, specifically drinking water boreholes. The Environment Agency will advise you in which zone the proposed storage area lies and what protection is required.

Surface water drains: If surface water drains are present where do they discharge? Do they need covering/protecting, especially if they are situated in or adjacent to the storage area?

Protected site: Does the proposed storage area fall within a protected site? If 'yes', what restrictions will this put on the siting and operation of an oily waste storage site in the area?

Substrate: The type of substrate will determine ease of access and what type of storage should be used.

Health & Safety: A risk assessment should address the health and safety of both members of the public as well as personnel involved in the incident response. Is the site secure and unauthorised preventable? Is physical access to the site likely to pose a risk e.g., due to traffic, steep gradient etc.?

Other: For noting any other relevant information about the site i.e., who owns land, has access key.

Environment Agency
Assessment Form for Temporary Holding area for Oily Waste
Site reference :_____ NGR of holding area: _____

Beach name :_____ Date assessed :_____

Assessor name : _____

Access from Beach			Holding Area			Route to Main road		
Surface	Tarmac		**Surface**	Tarmac		**Surface**	Tarmac	
	Shingle			Shingle			Shingle	
	Sand			Sand			Sand	
	Earth			Earth			Earth	
	Other			Other			Other	
Water Bodies Adjacent	Stream		**Water Bodies Adjacent**	Stream		**Water Bodies Adjacent**	Stream	
	Pond			Pond			Pond	
	Lake			Lake			Lake	
	Other			Other			Other	
	None			None			None	
Source Protection Zone			**Source Protection Zone**			**Source Protection Zone**		
Surface water drains in area?	Yes		**Surface water drains in area?**	Yes		**Surface water drains in area?**	Yes	
	No			No			No	
Is drain protection required?	Yes		**Is drain protection required?**	Yes		**Is drain protection required?**	Yes	
	No			No			No	
Special Site	RAMSAR	Y / N	**Special Site**	RAMSAR	Y / N	**Special Site**	RAMSAR	Y / N
	SSSI/SAC	Y / N		SSSI/SAC	Y / N		SSSI/SAC	Y / N

	LWS	Y / N		LWS	Y / N		LWS	Y / N
	Heritage coastline	Y / N		Heritage coastline	Y / N		Heritage coastline	Y / N
	None			None			None	
Habitat	Dunes		**Habitat**	Dunes		**Habitat**	Dunes	
	Saltmarsh			Saltmarsh			Saltmarsh	
	Woodland			Woodland			Woodland	
	Freshwater marsh			Freshwater marsh			Freshwater marsh	
	Grassland			Grassland			Grassland	
	Maritime cliff			Maritime cliff			Maritime cliff	
	Other			Other			Other	
Other (specify)			Other (specify)			Other (specify)		

Annex N

Establishment and Operation of Integrated Emergency Management Structure (Including Kent Resilience Forum context)

When an Integrated Emergency Management Structure is established, as part of a shoreline pollution response, its establishment and operation will be based upon the principles of Strategic, Tactical and Operational controls.

For Tier 3 incidents the following structures will be established.

The Strategic Co-ordination Centre (SCC)

Role:

- To manage the shoreline clean-up operation in its totality.

Tasks:

- To assess the threat and impact of pollution to the shoreline.
- To determine the overall clean-up strategy such as deciding the order of priority for action in protecting sensitive areas and dealing with pollution at the various polluted sites. The Management Team should produce an initial Strategy Statement as quickly as possible for dissemination to those within and outside the Strategic Co-ordinating Centre.
- To monitor progress against the agreed strategy.
- To consider and manage the general financial aspects of the operation.
- To interact closely with Elected Representatives, Central Government, the public and the press and media; and
- To prepare regular situation reports, concerning the conduct of operations, for circulation to all interested parties (based on briefings supplied by the Tactical and Operation controls, Scientific and Technical Advice Cell (STAC), Media Cell, Recovery Group and Environment Group(s)).

Possible membership:

- County Oil Pollution Officer Medway Council Oil Pollution Officer or nominated substitute (Chair) and staff officer
- District Oil Pollution Officer(s)
- Environment Group(s) representative
- STAC representative

- Media Cell representative
- Recovery Group representative
- MCA Counter Pollution and Response Branch
- Chairs of functional teams within the SCC (as required)
- Environment Agency
- Natural England
- Port Authorities
- Kent Police
- Kent Fire & Rescue

The Tactical Co-ordination Centre (TCC)

Role:
Reporting to the Management Team, the Technical Team is responsible for directing the operational response and scene management.

Tasks:
- Determining and agreeing all possible shoreline protection strategies with the SCC and Environment Group.
- Determining optimal clean-up strategy to be adopted to deal with pollution. Close liaison with the Environment Group(s) is essential.
- Allocating resources on a priority basis as determined by the Management Team.
- Informing the Management Team of any resource shortfalls.
- Allocating contractors to specific tasks as agreed with the Management Team.
- Transmitting decisions and work instructions to forward control centres.
- Monitoring the progress of operations.
- Meet/liaise with all Beach Masters to assess progress of operations and produce a revised forward plan for the next day's operations.
- Deploying staff to beaches to assess and report on beached and stranded oil (in conjunction with the Environment Group) and acting on reports received.

- Identifying and deploying strategic area beach-masters to promote consistency of operations and ensure that the Technical Teams instructions are being implemented properly.
- Ensuring that operations are technically reasonable.
- Ensuring that resources are being reasonably allocated.
- To ensure that health and safety risk assessments have been carried out and are implemented on a site by site basis; and
- Briefing the Management Team on the conduct of operations.

Membership.

- District Oil Pollution Officer (Chair)
- Clean-up contractor representative
- Emergency Planning Officer(s)
- MCA Senior Scientist or nominated substitute (Chair)
- Local authority representatives covering waste management, health and safety, technical and engineering services, landscape and ecology.
- MCA Scientist
- Environmental Liaison Officer (Environment Group(s))
- Environment Agency
- Kent Police
- Kent Fire and Rescue Service
- HM Coastguard
- Port Authorities

Operational Co-ordination

Role:

To oversee operational response including cordon management, clean-up, transport and waste management at scene(s).

The Environment Group

The concept of an Environment Group (EG), providing environmental advice to all units with a role in responding to a maritime pollution incident was recommended by Lord Donaldson in his 'Review of Salvage and Intervention and their Command and Control' (The Stationary Office, Cm 4193, March 1999). This recommendation was accepted by Government and incorporated in the National Contingency Plan (NCP) January 2000 (Section 9 & Appendix L).

[STOp Note 1/2001 sets out in detail the setting up, roles and responsibilities and working of the Environment Group.]

Purpose

The purpose of the Environment Group is derived from the Terms of Reference detailed in the National Contingency Plan.

Scope

The scope of EG functions will be directly proportional to the scale and location of the incident, its geographical location, extent, severity, oil and or chemicals involved, potential hazard to human health and the environmental sensitivities. The scale of incident and response and their constituent phases are likely to evolve over time. The functions of the EG will need to be graduated to meet changing requirements, escalating or diminishing in the input to each phase over time.

The definition of environment includes public health, the natural environment, water quality, wildlife, cultural, landscape, habitats and socio-economic factors linked to human health, e.g., through food chains.

Tasks:

- To provide environmental advice to the Secretary of State's Representative (SOSREP) the Maritime Response Centre, the Strategic Co-ordinating Centre and the Command and Control Centre.
- To liaise with and obtain environmental information from all response units established to deal with the pollution. To proactively manage information on all environmental issues between the cells; and
- In order to minimise the impact of an oil and or chemical pollution incident on human health and the environment, the EG has a role in determining optimal environmental end points, beyond which the response will not provide environmental benefit, or may actually be a dis-benefit. The scope of this task includes identification of how 'clean' the environment needs to be to enable ecological recovery.

Standing Environment Groups

Within the area covered by this plan two Standing Environment Groups operate: the Greater Thames Estuary Standing Environment Group, covering Kessingland to Ramsgate, and the Kent and Sussex Standing Environment Group, covering Ramsgate to Selsey Bill. Their roles and responsibilities includes.

- To provide those undertaking operational incident management with timely and authoritative information, advice and tactics as to the environmental and health and safety considerations in all aspects of an oil or chemical marine pollution.
- To form a Core Group to devise and maintain (on behalf of and in consultation with the Standing Group) a Plan of arrangements for response to all oil/chemical incidents.
- To identify organisations and individuals to provide information and special roles and to undertake liaison, technical and administrative support for the preparation, maintenance and implementation of the Plan including training and exercising.
- To provide public health, safety and environmental impact advice and guidance to all agencies involved in response to an oil and or chemical marine pollution incident and on any options or specific operational proposals or strategies proposed or undertaken.
- To advise response units so as to minimise the impact of the incident on the environment in the widest sense taking account of the risks to public health, the natural environment and potential impacts arising from any response operation whether salvage or clean-up operations at sea and/or on the shoreline and disposal operations.
- To monitor, assess and document the public health, environmental (including wildlife) impact of a maritime pollution incident with respect to oil and/or chemicals and the impact of all measures implemented in response to the incident; and
- To facilitate welfare, rehabilitation or humane disposal of wildlife casualties by recognised animal welfare organisations.

Kent Resilience Forum (KRF) Marine and Aquatic Pollution Subgroup

This subgroup reports to the KRF Plans and Capabilities Group and is chaired by the County Oil Pollution Officer. Membership includes MCA, coastal district councils, Medway Council, Kent County Council, port and harbour authorities, Environment Agency, Natural England, Southern Water and other stakeholders.

The group has oversight of this plan and also carries out task and finish projects, such as the STOp notice on waxy mineral and vegetable oil.

Commonly Used Acronyms

ACPO	Association of Chief Police Officers
ARCC	Air Rescue Co-ordination Centre
BIS	Department for Business Innovation and Skills
BNFL	British Nuclear Fuels
BOSCA	British Oil Spill Control Association
BTA	British Tugowners Association
CAA	Civil Aviation Authority
CAST	Coastguard Agreement on Salvage and Towage
CCW	Countryside Council for Wales
CHAG	Chemical Hazards Advisory Group
CIA	Chemical Industry Association
CLC	Civil Liability Convention
COSSH	Control of Substances Hazardous to Health
DDO	Duty District Officer
DEFRA	Department of Environment, Fisheries and Rural Affairs
DRO	Duty Regional Officer (MCA)
DMO	Director of Maritime Operations (MCA)
DTI	Department of Trade and Industry
EA	The Environment Agency
EG	Environment Group
EHS	Environment and Heritage Service (Northern Ireland)
ELO	Environment Liaison Officer
EPG	Environment Protection Group
FCC	Forward Control Centre
FCO	Foreign and Commonwealth and Development Office
FEPA	Food and Environment Protection Act (1985)
FPSO	Floating Production Storage and Offloading Vessel
FSU	Floating Storage Unit
HMCG	Her Majesty's Coastguard
HMSO	Her Majesty's Stationery Office
HNS	Hazardous Noxious Substances

HOO	Head of Operations (MCA)
HSE	Health and Safety Executive
IMO	International Maritime Organisation
IOPC	International Oil Pollution Compensation Fund
ITOPF	International Tanker Owners Pollution Federation
JNCC	Joint Nature Conservation Committee
MCA	Maritime and Coastguard Agency
MCZ	Marine Conservation Zone
MARPOL	Convention for the Prevention of Pollution from Ships 1973 as modified by the Protocol of 1978
MEHRAs	Marine Environmental High Risk Areas
MEIR	Marine Emergencies Information Room
MEPC	Marine Environment Protection Committee
MMO	Marine Management Organisation
MOD	Ministry of Defence
MOU	Memorandum of Understanding
MRC	Marine Response Centre
MRCC	Maritime Rescue Co-ordination Centre
MRSC	Maritime Rescue Sub Centre
MSD	Marine Safety Division
NAWAD	National Assembly for Wales Agriculture Department
NCP	National Contingency Plan
NE	Natural England
NHS	National Health Service
OPOL	Offshore Pollution Liability Association Ltd
OPRC	Oil Pollution Preparedness, Response and Co-operation Convention 1990
OS	Ordnance Survey
P&I Club	Protection and Indemnity Club
PCPSO	Principal Counter Pollution & Salvage Officer
PLA	Port of London Authority
PPE	Personal Protective Equipment
PREMIAM	Pollution Response in Emergencies, Marine Impact and Assessment Monitoring project

RDO	Regional District Officer
RIDDOR	Reporting of Injuries, Diseases and Dangerous Occurrences Regulations
RSPCA	Royal Society for the Prevention of Cruelty to Animals
RSPB	Royal Society for Protection of Birds
SAR	Search and Rescue
SCAT	Shoreline Clean-up Assessment Technique
SCU	Salvage Control Unit
SEEEC	Sea Empress Environmental Evaluation Committee
SFI	Sea Fisheries Inspectorate
SNH	Scottish Natural Heritage
SOLAS	Safety of Life at Sea
SOSREP	Secretary of State's Representative
SPA	Special Protection Area
SAC	Special Area of Conservation
SCC	Strategic Co-ordination Centre
SSSIs	Sites of Special Specific Interest
STOp	Scientific, Technical and Operational Guidance Notices
TCC	Tactical Co-ordinating Centre
TDA	Temporary Danger Area
TEZ	Temporary Exclusion Zone
UK	United Kingdom
UKOOA	United Kingdom Offshore Operators' Association
UKPIA	United Kingdom Petroleum Industry Association
UNCLOS	United Nations Convention on the Law of the Sea
WM	Watch Manager
WRA	Water Resources Act

Annex O

Scientific, Technical and Operational Advice Notes

SCIENTIFIC, TECHNICAL & OPERATIONAL (STOp) GUIDANCE NOTES

* STOp 2/94 Low Viscosity Type 3 Dispersant.
* STOp 1/98 Health, Safety and Welfare during Shoreline Clean-up.
* STOp 2/95 Operational Guidance for the Application of Bio-remediation Agents.
* STOp 4/09 Guidelines for the Preparation of Coastal and Estuarine Booming Plans.
* INF Note 2/2000 Petroleum Industries Association Ltd (UKPIA) Regional Co-ordinators.
* STOp 2/2009 Maritime Pollution in the UK The Environment Group.
* STOp 3/2009 The Establishment, Management Structure, Roles and Responsibilities of a Shoreline Response Centre During a Marine Pollution Incident in the UK.
* STOp 3/2003 Preparing local authority Oil and Chemical Spill Contingency Plans in line with the “National Plan for Marine Pollution from Shipping and Offshore Installations”.
* STOp 1/2003 Guidance for the Operation of the Technical Team, Waste Management Sub-Group within a National Contingency Plan Shoreline Response Centre.
* STOp 2/2003 Procedure for Initiating Response to Public Health Threat Prior to and during a Maritime Pollution Incident.
* STOp 1/93 The Establishment, Management Structures and layout of a shoreline response centre.
* STOp 1/96 Collection Handling of Oil Samples.
* STOp 4/2001 Advice to local authorities on the Collections and Handling of Oil Samples.
* STOp 1/2009 Guidance for Contingency Planning and Operation of the Technical Team Waste Management Subgroup within a National Contingency Plan Shoreline Response Centre in England and Wales.
* STOp 1/16 Response and Recovery to a Maritime Pollution Incident impacting the UK shoreline.
* STOP 2/16 The Environment Group.
* STOP 3/16 Waste Management Guidance Following a Maritime Pollution Incident in the UK.

Note: *Copies of the above can be downloaded at* www.gov.uk/government/publications/scientific-technical-and-operational-advice-notes-stop-notes

Enquiries regarding STOp notices should be sent to e-mail **meir.meir@mcga.gov.uk**

Annex P

Kent Coastal Sites Designated for Nature Conservation Significance:

• Dover to Deal MCZ	• Romney Warren SSSI
• Dover to Folkestone MCZ	• Sandwich and Pegwall Bay National Nature Reserve
• Dover to Kingsdown Cliffs SAC	• Sandwich Bay SAC
• Dover to Kingsdown Cliffs SSSI	• Sandwich Bay to Hacklinge Marshes SSSI
• Dungeness National Nature Reserve	• Sheppey Cliffs and Foreshore SSSI
• Dungeness Ramsar	• South Thames Estuary and Marshes SSSI
• Dungeness SAC	• Southern North Sea SAC
• Dungeness, Romney Marsh and Ray Bay SSSI	• Swanscombe MCZ
• Dungeness, Romney Marsh and Rye Bay SPA	• Swanscombe Peninsula SSSI
• Elmley Marshes National Nature Reserve	• Tankerton Slopes SSSI
• Folkestone Pomerania MCZ	• Thames Estuary and Marshes Ramsar
• Folkestone Warren SSSI	• Thames Estuary and Marshes Special Protection Area
• Foreland MCZ	• Thanet Coast and Sandwich Bay Ramsar
• Goodwin Sands MCZ	• Thanet Coast and Sandwich Bay Special Protection Area
• Holborough to Burham Marshes SSSI	• Thanet Coast MCZ
• Inner Bank MCZ	• Thanet Coast SAC
• Margate and Long Sands SAC	• Thanet Coast SSSI
• Medway Estuary and Marshes Ramsar	• The Swale National Nature Reserve
• Medway Estuary and Marshes Special Protection Area	• The Swale Estuary MCZ
• Medway Estuary and Marshes SSSI	• The Swale Ramsar
• Medway Estuary MCZ	• The Swale Special Protection Area
• Outer Thames Estuary Special Protection Area	• The Swale SSSI

Further information on designated sites, including the protected features and their sensitives, can be found here - https://designatedsites.naturalengland.org.uk/

Figure P1. Map of Kent Showing Marine Protected Areas off the Kent coast

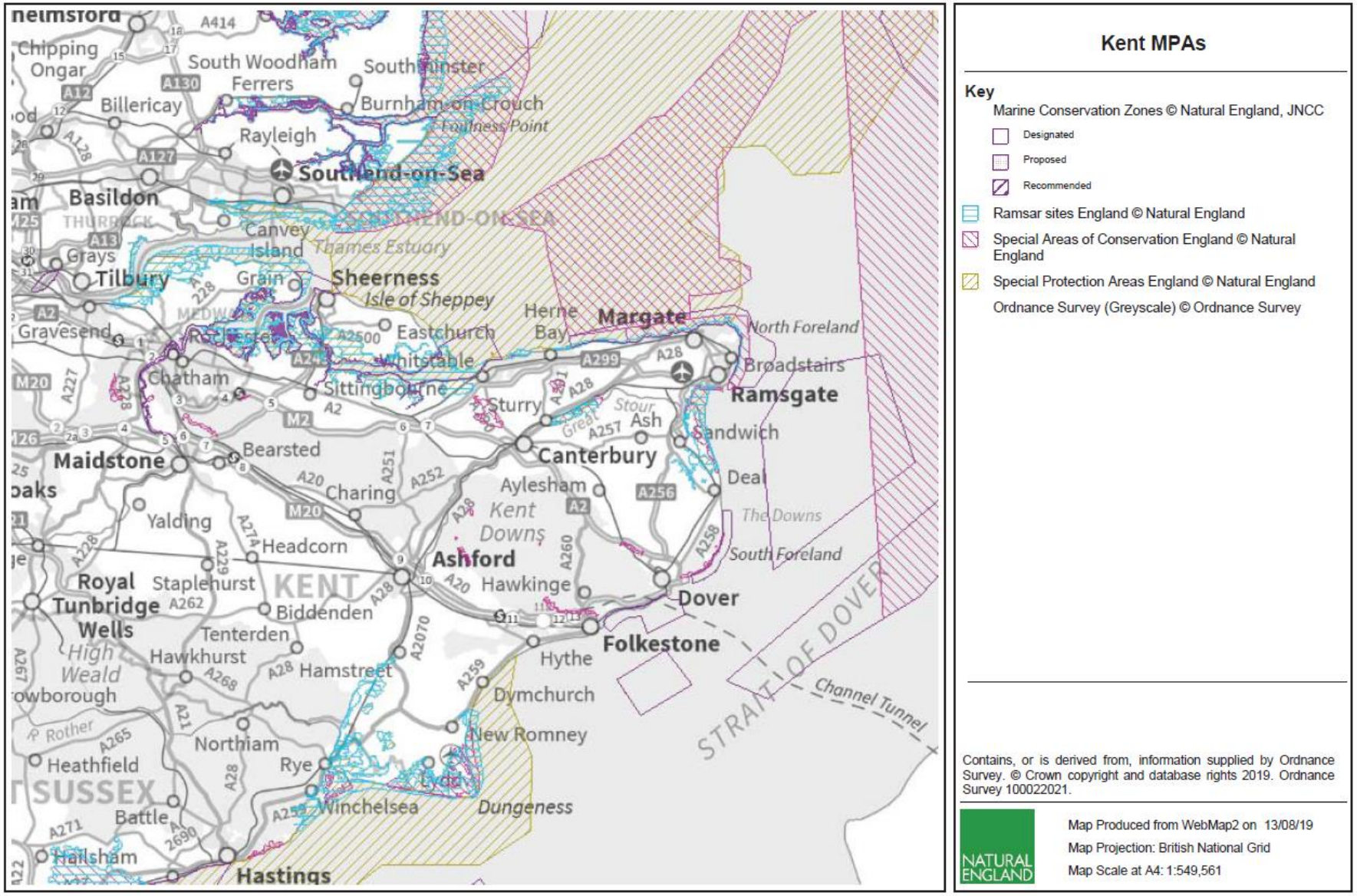


Figure P2. Map of North East Kent Showing Marine Protected Areas

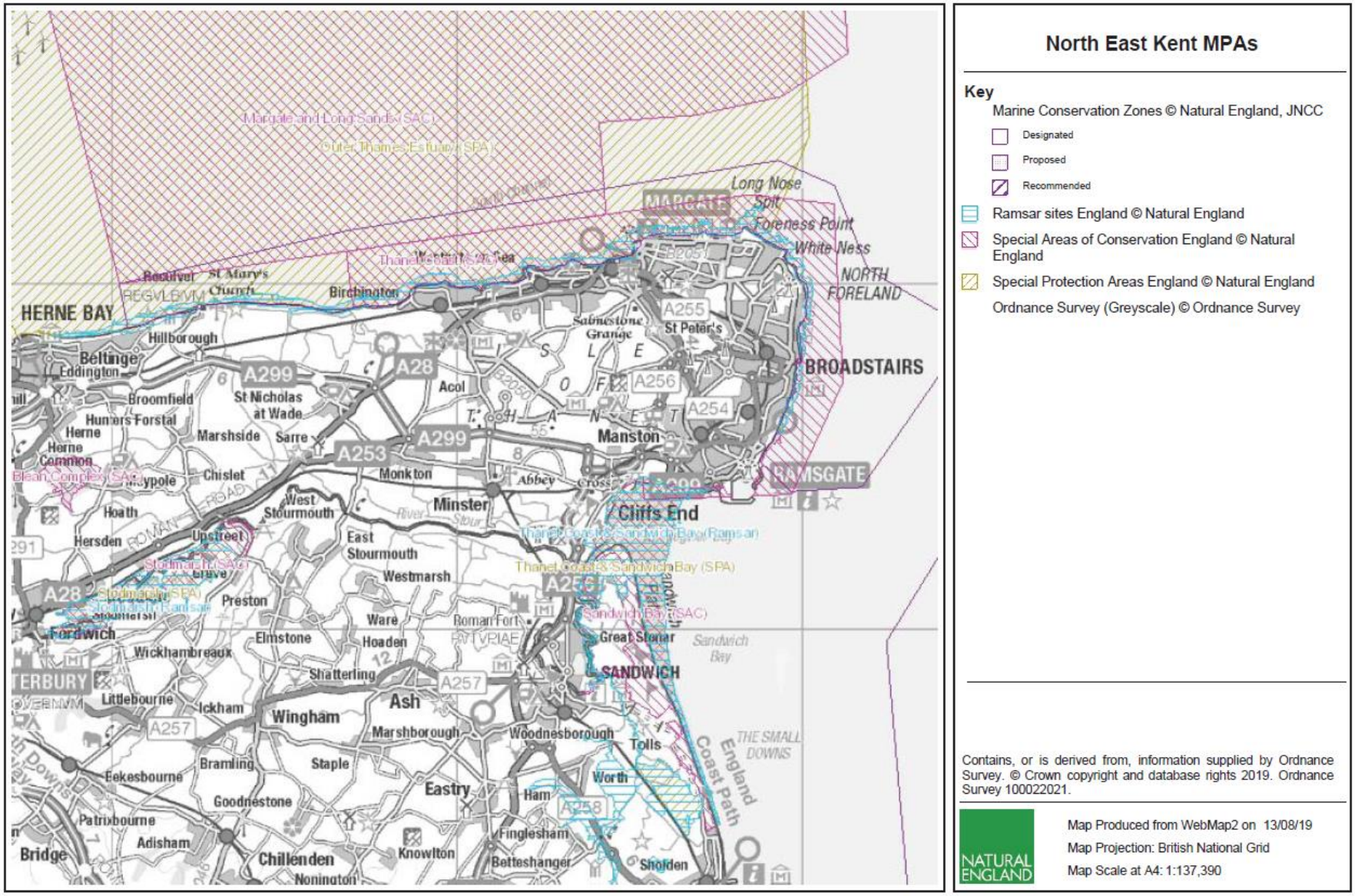
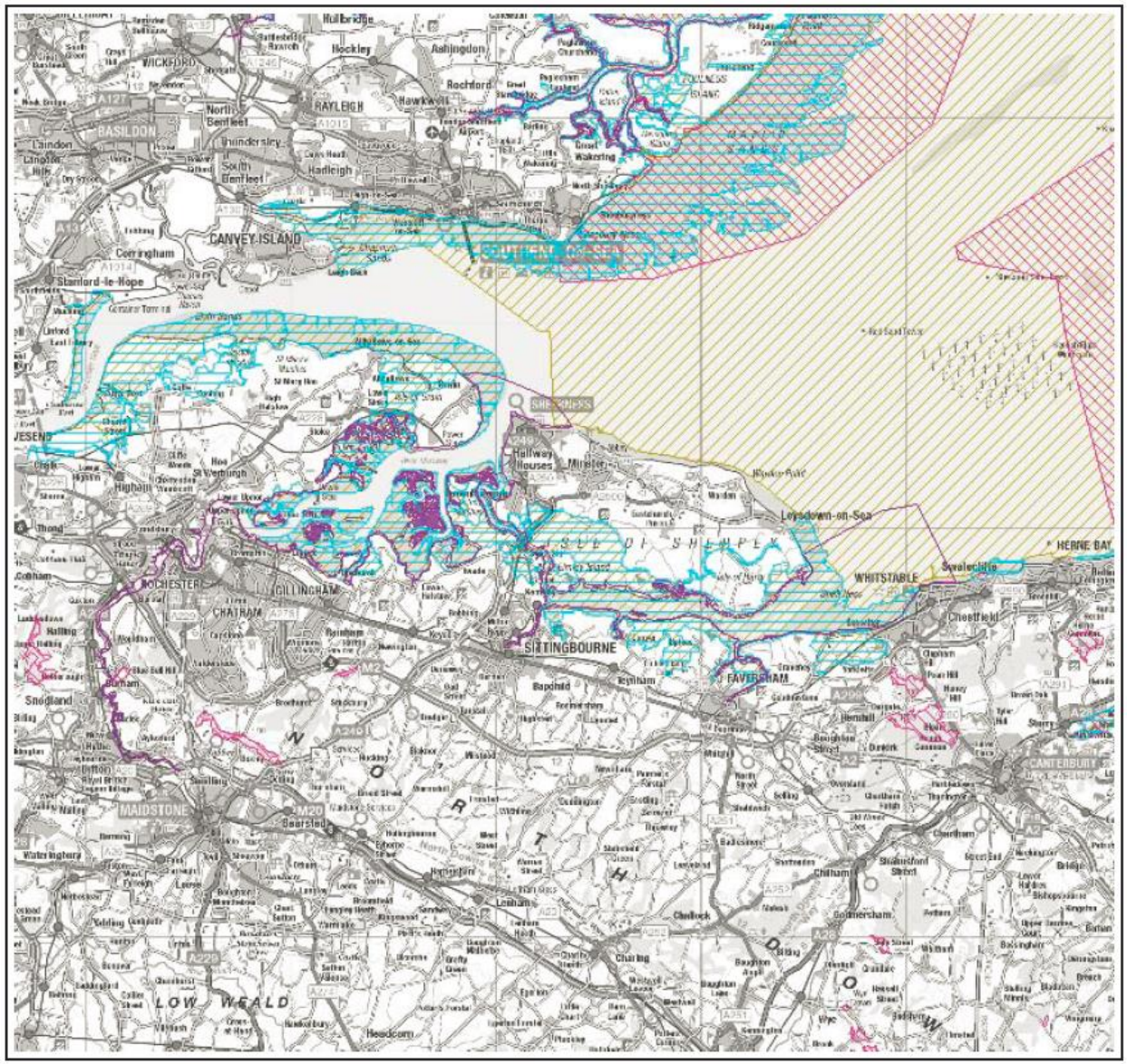


Figure P3. Map of North West Kent Showing Marine Protected Areas



North West Kent MPAs

Key

Marine Conservation Zones © Natural England, JNCC

- Designated
- Proposed
- Recommended

Ramsar sites England © Natural England

Special Areas of Conservation England © Natural England

Special Protection Areas England © Natural England

Ordnance Survey (Greyscale) © Ordnance Survey

NATURAL ENGLAND

Map Produced from WebMap2 on 13/08/19

Map Projection: British National Grid

Map Scale at A4: 1:274,781

Figure P4. Map of South East Kent Showing Marine Protected Areas

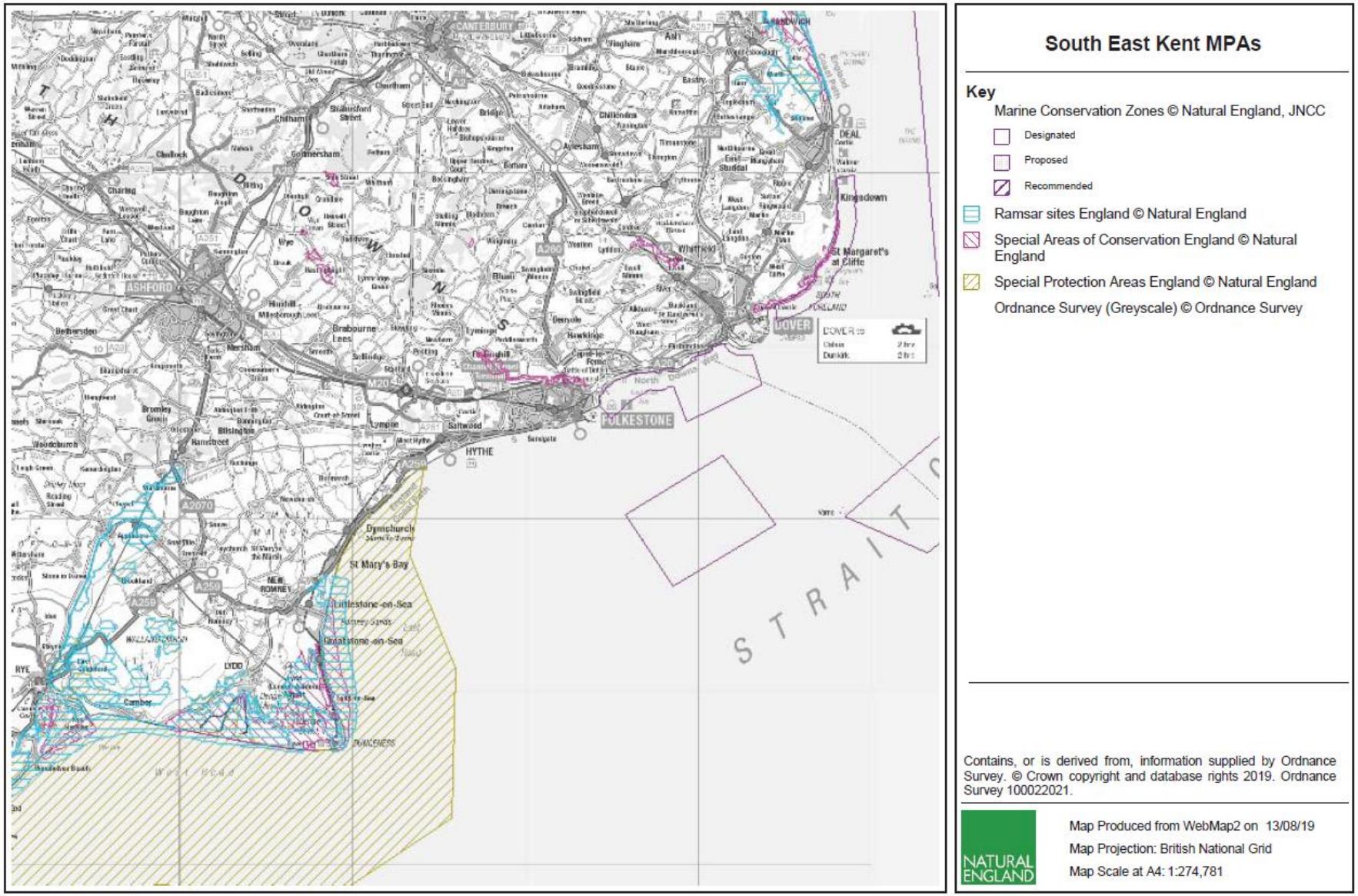
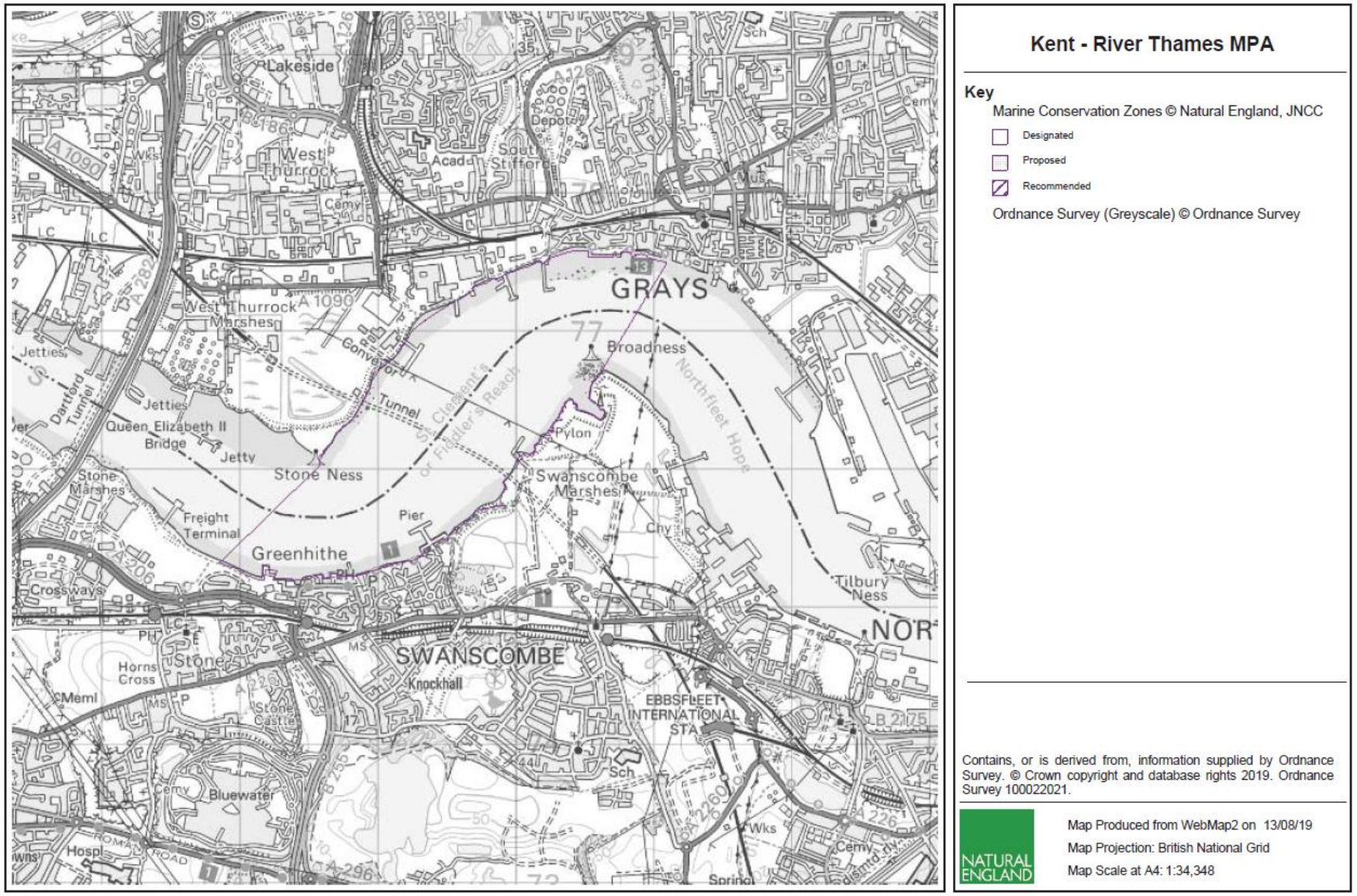
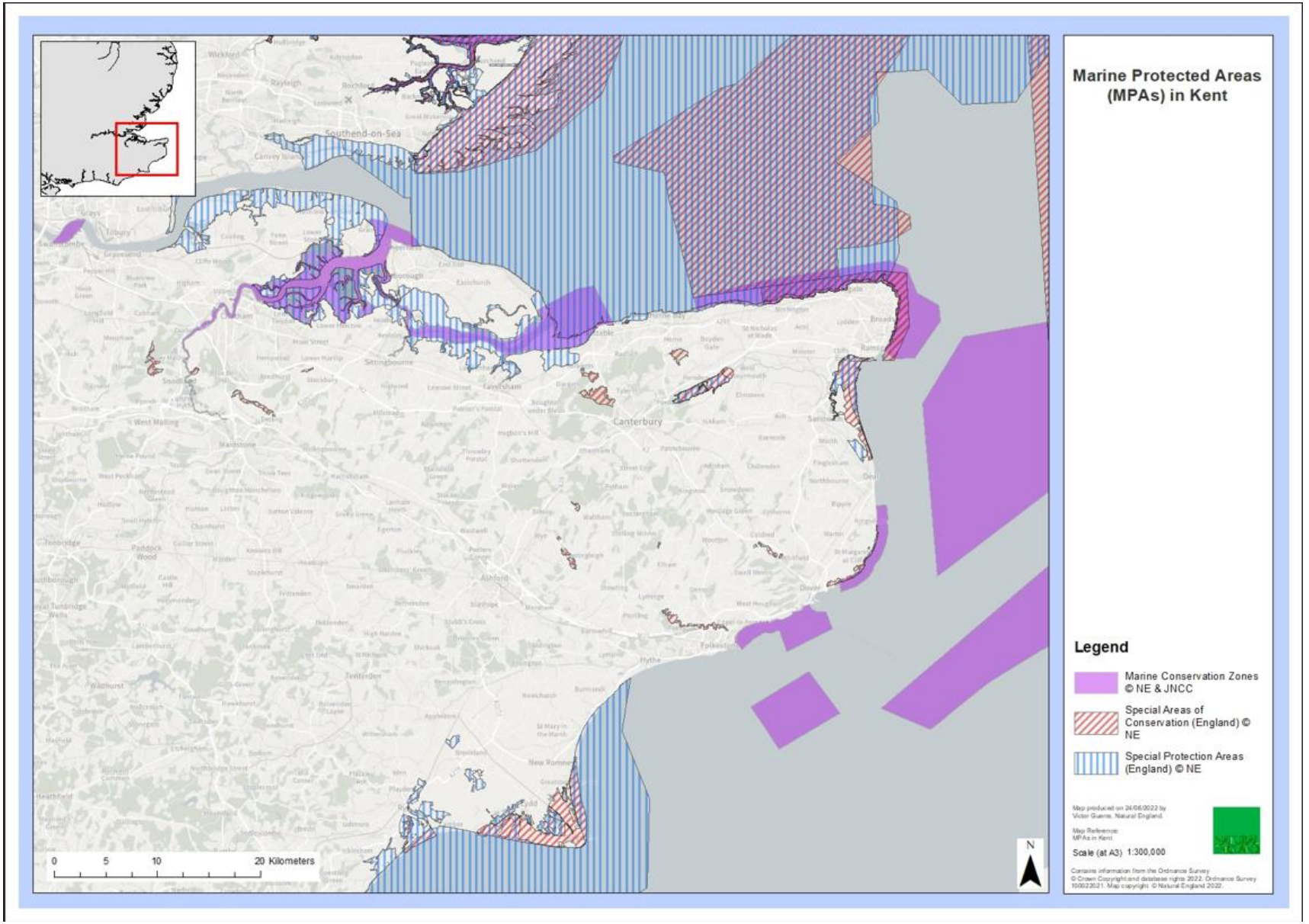
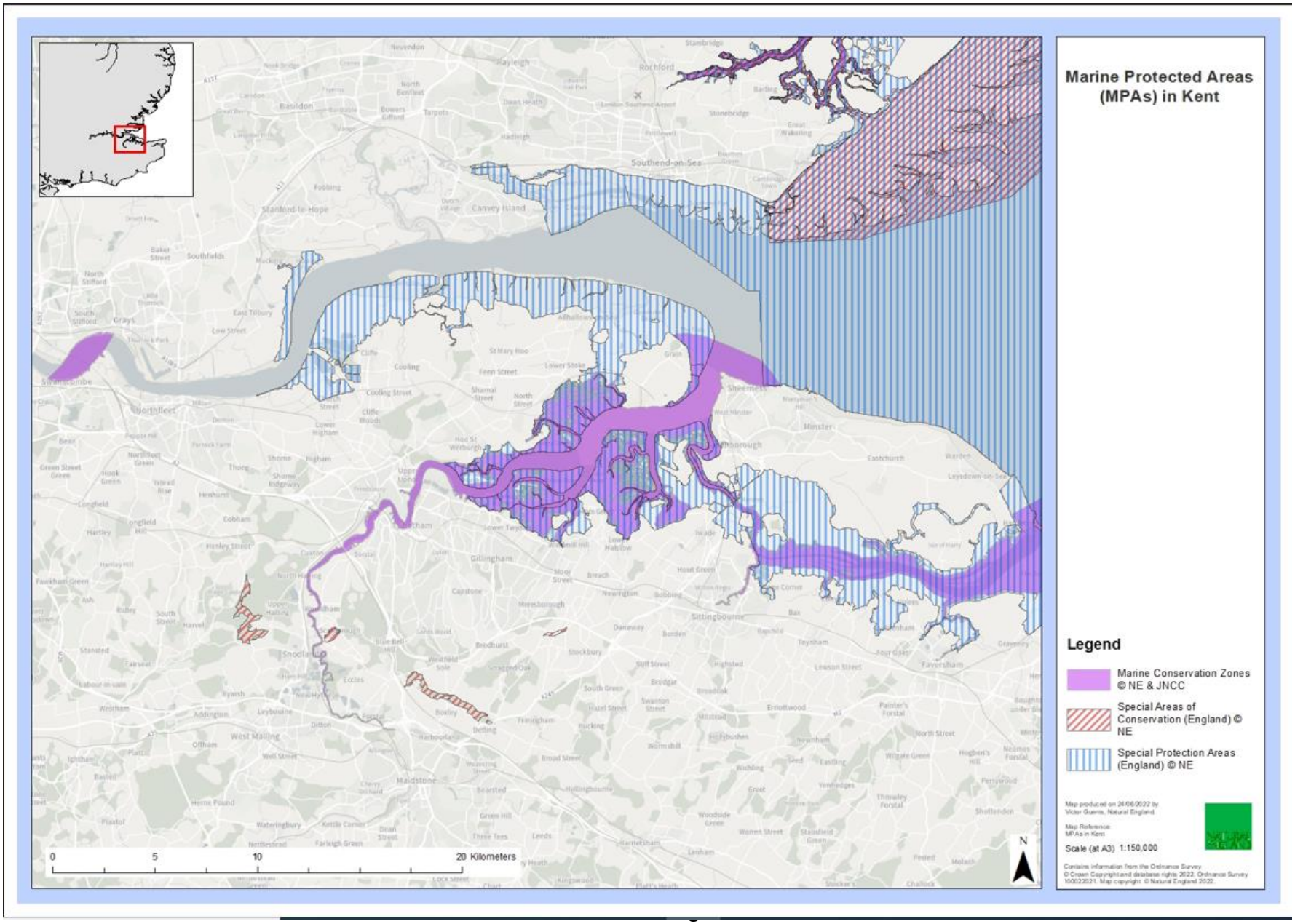


Figure P5. Map of Swanscombe Peninsula Showing Marine Protected Areas



Marine Protected Areas (MPAs) in Kent




Marine Protected Areas (MPAs) in Kent
Legend
Marine Conservation Zones © NE & JNCC
Special Areas of Conservation (England) © NE
Special Protection Areas (England) © NE
Scale (at A3) 1:150,000
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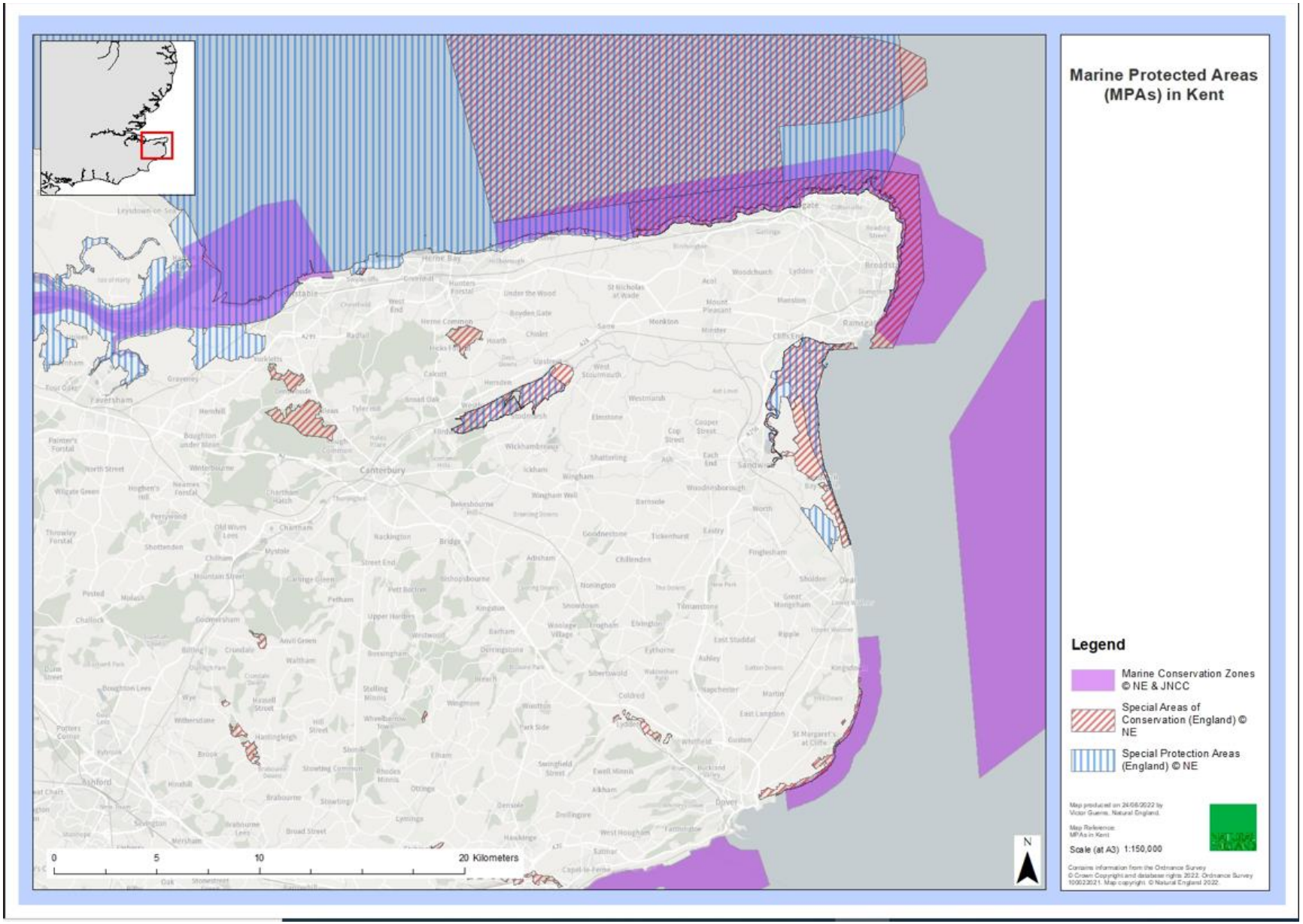
Marine Protected Areas (MPAs) in Kent
Legend
Marine Conservation Zones © NE & JNCC
Special Areas of Conservation (England) © NE
Special Protection Areas (England) © NE
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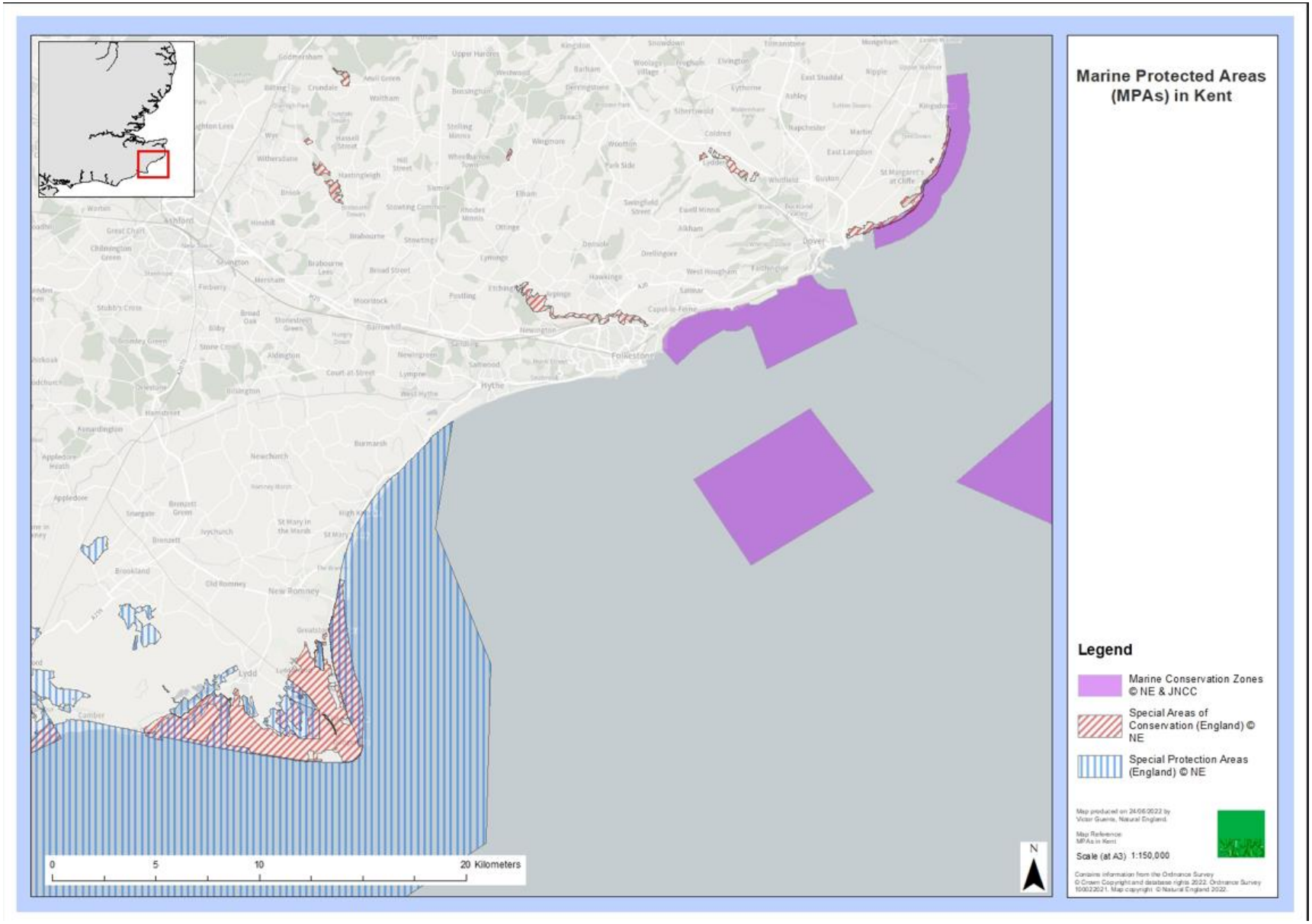
Canterbury


Marine Protected Areas (MPAs) in Kent
Legend
Marine Conservation Zones © NE & JNCC
Special Areas of Conservation (England) © NE
Special Protection Areas (England) © NE
Scale (at A3) 1:150,000
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Annex Q

Shoreline Clean-up Advice

Natural England will be required to provide advice on the appropriateness of clean-up options. This will normally be provided by the Environment Group or Incident Co-ordinator (where an Environment Group has not been formed). Such advice is provided at two levels:

- Strategic guidance identifying priority areas for cleaning and general guidelines on appropriate clean-up methods.
- Tactical guidance on the application of clean-up methods on specific areas. Such guidance is best provided on-site.

There are a number of actions which can be taken to clean an impacted site. The choice of strategy will be dependent upon:

- Rate and likelihood of natural recovery.
- Nature and distribution of pollution.
- Site access.
- Shoreline characteristics.
- Resource availability.
- Safety; and
- Environmental sensitivity.

Tables 5.1 and 5.2 provide generic clean-up guidance for different shoreline types for both non-persistent and persistent oils respectively.

Note: The following tables are for representative shoreline types only. Where a method is identified as ‘not recommended’ this does not mean that it should be ruled out completely. There will be occasions where clean-up is possible or necessary on shoreline types which in normal circumstances would not be contemplated, e.g., heavily oiled saltmarsh.

Table 5.1 Shoreline Clean-up Guidelines For Non Persistent Oils (Group I)

Adapted from Wardrop, J.A. (2002). The Assessment of Oiled Shorelines: A Simplified Approach. Great Barrier Reef Marine Park Authority.

Key:

A	Approval needed	**C**	Conditional – May not be feasible
R	Recommended		Not recommended

Substrate	Form	1 Natural Recovery (Self-Cleaning)	2 Manual Clean-up	3 Use of Sorbents (Recovery)	4 Debris Removal	5 Trenching (Mechanical or Manual)	6 Mechanical: Sediment Removal	7 Mechanical: Sediment Reworking	8 Flushing/Deluge Washing	9 Washing: Ambient Temperature & Low Pressure	10 Washing: Ambient Temperature & High Pressure	11 Washing: High Temperature and Low Pressure	12 Washing: High Temperature and High Pressure	13 Sand blasting/Steam Cleaning	14 Vacuum Recovery	15 Chemicals: Dispersants	16 Chemicals: Other Agents	17 Bioremediation	18 Cutting of Vegetation
Bedrock	Cliff (exposed)	R	C	C	C											CA	CA		
	Cliff (sheltered)	R	C	C	R				C	R	R	C	C	C		CA	CA		
	Platform (exposed)	R	C	C	C				R	C	C	C	C	C		CA	CA		
	Platform (sheltered/broken)	R	R	C	R				R	R	R	C	C	C		CA	CA		
Boulder	Beach (exposed)	R	R	C	R				R	C	C	C	C	C		CA	CA		
	Beach (sheltered)/Rip Rap	R	R	C	R				R	C	C	C	C			CA	CA		
Cobble	Beach	R	C	C	R	C		R	C	C	C	C	C			CA	CA	C	
Pebble	Beach	R	C	C	R	C		R	C	C	C	C	C			CA	CA	C	
Gravel	Beach	R	C	C	R	C		R	C	C		C				CA	CA	C	
Course sand	Beach	C	C	C	R	C	C	C	C								CA	C	
Fine sand	Beach	C	C	R	R	C	C	C	C							CA	CA	C	
Mud	Flat	R	C	C	C				C								CA		
	Marsh	R	C		C				C								CA		
Artificial	Seawalls/jetties	R	R		R						C		C	C		CA	RA		

Shoreline Clean-up Guidelines For Table 5.2 – Clean-up of Persistent Oils (Groups II, III and IV)

Adapted from Wardrop, J.A. (2002). The Assessment of Oiled Shorelines: A Simplified Approach. Great Barrier Reef Marine Park Authority.

Key:

A	Approval needed	**C**	Conditional – May not be feasible
R	Recommended		Not recommended

Substrate	**Form**	**Clean up Method** 1 Natural Recovery (Self-Cleaning)	2 Manual Clean-up	3 Use of Sorbents (Recovery)	4 Debris Removal	5 Trenching (Mechanical or Manual)	6 Mechanical: Sediment Removal	7 Mechanical: Sediment Reworking	8 Flushing/Deluge Washing	9 Washing: Ambient Temperature & Low Pressure	10 Washing: Ambient Temperature & High Pressure	11 Washing: High Temperature and Low Pressure	12 Washing: High Temperature and High Pressure	13 Sand Blasting/Steam Cleaning	14 Vacuum Recovery	15 Chemicals: Dispersants	16 Chemicals: Other Agents	17 Bioremediation	18 Cutting of Vegetation
Bedrock	Cliff (exposed)	R	C	C	C											CA	CA		
	Cliff (sheltered)	C	C	C	R				C	R	R	R	R	C	C	CA	CA		
	Platform (exposed)	R	C	C	C				R	C	C	C	C	C	C	CA	CA		
	Platform (sheltered/broken)	R	R	C	R				R	R	R	R	R	C	R	CA	CA		C
Boulder	Beach (exposed)	R	R	C	R				R	C	C	C	C	C	C	CA	CA		
	Beach (sheltered)/Rip Rap	C	R	C	R				R	C	C	C	C		C	CA	CA		C
Cobble	Beach	R	R	C	R	C	C	R	C	C	C	C	C		C	CA	CA	C	
Pebble	Beach	R	R	R	R	C	C	R	C	C	C	C	C		C	CA	CA	C	
Gravel	Beach	R	R	R	R	C	C	C	C	C		C			C	CA	CA	C	
Course sand	Beach	C	R	R	R	C	R		C						R		CA	C	C
Fine sand	Beach	C	R	R	R	C	R		C						R	CA	CA	C	C
Mud	Flat	C	C	C	C				C						C		CA		
	Marsh	R	C		C				C						C		CA		
Artificial	Seawalls/jetties	C	R		R						C		C	C		CA	RA		

Annex R

Booming Plans:

a. River Thames, covering Yantlet Creek, Cliffe Creek, Swanscombe Marshes and Dartford Creek.
b. Faversham and Otterham Creeks

THAMES BOOM SURVEY
Yantlet Creek, Cliffe Creek, Swanscombe Marshes, Dartford Creek (R. Darent)

INTRODUCTION
This document has been produced on behalf of Kent and Medway Councils for use in response to a pollution incident within the Thames Estuary.

The coverage area of this document has been focused on 4 sites where it is considered that booming operations are achievable:

- Yantlet Creek
- Cliffe Creek
- Swanscombe Marshes
- Dartford Creek (River Darent)

Areas looked at that were thought to be unsuitable for the deployment of booms were the shoreline from:

- Yantlet Creek OS Grid Ref: 855 785 to Cliffe Creek OS Grid Ref: 708 771
- Cliffe Creek OS Grid Ref: 708 769 to Northfleet OS Grid Ref: 611 765
- Swanscombe OS Grid Ref: 601 760 to Dartford Marshes OS Grid Ref: 543 779

These areas were thought to be unsuitable for the deployment of booms due to:

- High-energy beaches.
- Exposure to prevailing weather.
- Tidal flow rates.
- Shoreline type; and
- Access restrictions for deployment of equipment & recovery of pollution.

The conditions that a boom deployment would be subjected to if deployed in these areas would render the collection properties totally ineffective and risk structural damage to the boom. Each section of the report includes a site overview and detailed boom deployment plans.

The structure for each section presents a deployment method of booms that is dependable on a number of factors, pollution type, area of impact, tidal regime, weather conditions and equipment resources. Pollution response officers managing a coordinated response may amend the prioritisation of sites.

There are many operational factors that are referred to in each boom deployment plan. Only trained and experienced staff should be tasked to deploy the booms. The information enclosed is to be used as guidelines and as a planning aid to actual on site evaluation and should be used for information only.

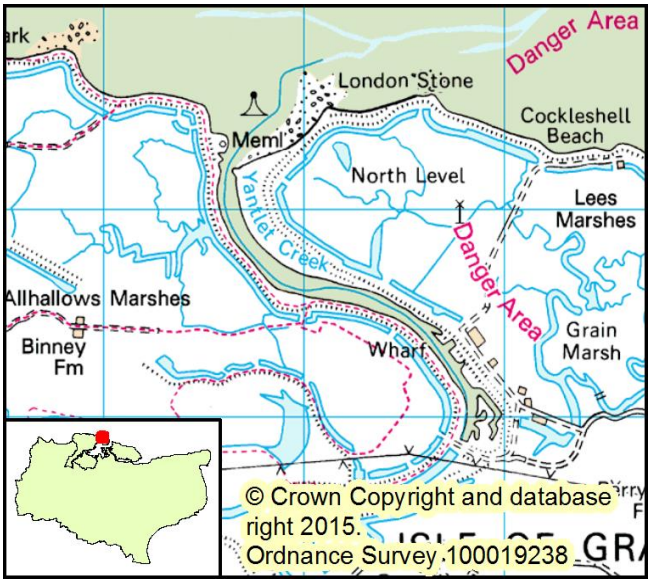
YANTLET CREEK
A boom plan has been developed for Yantlet Creek following the assumption that equipment resources and experienced personnel are available for deployment. The boom has been identified as physically achievable and would utilize the boom collection properties combined with access practicality for deployment and the recovery of pollution.

Factors that have contributed to boom site identification include:
• To provide protection of sensitive sites.
• Shore substrate.
• Access for deployment.
• Suitability for deployment of recovery equipment.
• Potential for volume of collection.
• Temporary storage facilities; and
• Access for pollution evacuation.
The deployment of equipment will need to be approved by the Environment Group.

BOOM DEPLOYMENT:
A coastal erosion mound surrounds the area of 'Lees' and 'Allhallows' marshes on both banks of the Yantlet. Two access tracks run along the erosion defence wall, one along the top of the mound and the second alongside the mound on the marsh side. These tracks provide good access to the full length of Yantlet Creek for deployment of a boom and recovery of pollution. The mouth of Yantlet Creek has very fast flowing water through the narrow mouth. To deploy a successful boom the deployment would need to be further upstream where the flow rates are not as strong.

Deflection Boom OS Grid Ref: 862 776
The boom deployed at Yantlet creek is to deflect any oil progressing along the creek to the right bank for recovery from the bank side within the grounds of the military firing range.

YANTLET CREEK PROTECTION PLAN
LOCATION: Yantlet Creek, Isle of Grain (OS Sheet 178 Grid Ref: 862 776)



FLOW RATES:
There is no formal tidal data for this site. The flow rates experienced on the day were neap tides. Following periods of heavy rain, the ebb tidal flow may increase considerably.

SPRING TIDES:
Flood: 2 Knots Ebb: 2.5 knots

NEAP TIDES:
Flood: 1.5 Knots Ebb: 2 Knots

DEFINITIONS:
The following terminology and definitions (used by the Maritime & Coastguard Agency to define ‘Riverbanks’) will be used by all organisations in order to avoid any confusion and to ensure correct deployment of manpower and resources.

The definition is as follows: "With your back to the ebb tidal flow all locations in front of you will be defined as "Down Stream" and all locations behind you will be defined as "Up Stream". To your right hand side will be the right bank and to your left will be the left bank".

SITE ACCESS AND BOOM LOCATION:
From the A2 eastbound take the A289 exit to Wainscott. At the roundabout turn left onto the A228 and follow signs for Grain. Upon entering the village of Grain turn left into West Lane signed for Yantlet Range. This road leads to a military gatepost and the entrance to Yantlet Range. From the gatepost a track runs along the top of the coastal erosion defence wall that runs along the right bank of Yantlet Creek. The boom deployment site is located along this track next to a sluice gate.

LOCAL LIAISON:
Medway Council
Yantlet Military Firing Range
Environment Agency
Port of London Authority

EQUIPMENT LIST:
Shallow Draft Workboat x 1
Safety boat x 1
Measuring Line x 1
Shore Sealing Boom x 200m
Towing bridles x 2
Water pump & hoses x 1
Air blower and connector x 1
Beach Anchor Plates x 6
Mooring Buoys with trip lines x 10
Danforth 15kg Anchors x 10
Chain (6m lengths) x 12
Warps 10mm x 25m x 12
18mm Rope x 200m
Sledge Hammer x 2
Linear Winch x 1
Shackles (min of 2 per mooring point)
VHF Handheld Radios (Channel 10)
CAT Scanner

MANPOWER:
The response to an oil pollution incident at Yantlet Creek will be co-ordinated by a Beach Master. Staff identified by the Beach Master will deploy the booms. A supervisor with training in and a working knowledge of boom deployment will supervise these staff. This group of staff will be referred to as the ‘Yantlet Creek Team’.

The Yantlet Creek Team will comprise of the following staff:
Shore Team Boat Team
Beach Master x 1 Boat Handler x 2
Foreman x 1 Coxswain x 2
Boom Deployment Crew x 10
There are large areas of hard standing within the grounds of Yantlet Range that are suitable to be utilized as a rendezvous point and equipment lay down area, but permission must be sought from the landowner. The deployment of all equipment and manpower will be coordinated by the Beach Master from the Rendezvous Point (RvP).

COMMUNICATIONS:
Marine band channel 10. Mobile phone reception is good on site.

HEALTH AND SAFETY:
All staff should be made aware of health and safety responsibilities. Refer to MCA STOp note 1/98. Access to the site is gained through Yantlet Firing Range. Entry should not be made until contact with the firing range has been made and access granted. Personnel working from boats and on the foreshore must wear life jackets at all times. Before Beach Anchor plates are driven into the foreshore the ground should be checked for underground services with a Cable Avoidance Tools. The riverbed exposed at low water is of soft mud. Staff should be made aware of the potential dangers and should not venture onto the mud.

PHYSICAL DESCRIPTION OF THE SITE:
Yantlet Creek is located on the North of the Isle of Grain overlooking the mouth of the River Thames. Yantlet Creek is approximately 30m wide at the mouth, which then opens travelling upstream to approximately 100m wide. An embanked coastal erosion defence wall of compacted earth with a rough grass surface backs both banks. At the creek mouth the right bank is a shingle embankment, and the left is a compacted mud bank with a short section of a redundant concrete structure set into the bank. The riverbanks form a sharp bend in the channel where the banks are approximately 4 metres high with very steep slopes. Upstream from the mouth where the channel opens, areas of salt marsh line both the right and left banks. The riverbanks are of soft mud backed by a narrow area of rough grass that leads to the foot of the embanked erosion defence wall. Beyond these lie ‘Allhallows Marshes’ off the left bank and ‘Lees Marshes’ and the Yantlet Firing Range off the right bank.

BOOM CONFIGURATION:
A collection boom 200m in length of shore sealing boom should be deployed from the right bank at OS Grid Ref: 862 776 adjacent to the marshes sluice gate. The boom should follow the line of the LW channel downstream and then angle across to the left bank to ensure correct positioning throughout the full tide cycle.

BOOM DEPLOYMENT:
The boom at this site should be deployed at high water slack. Access to the site is gained through Yantlet Firing Range. Entry should not be made until contact with the firing range has been made and access granted.

- The area of hard standing adjacent to the access gate would be the most suitable area to be used as equipment lay down area, but permission should be sought from the landowner. From here equipment should be mobilised to the right bank deployment area by 4WD vehicle or similar.
- Permanent moorings are not available at this site.
- Downstream from the sluice and at a point suitably above the HW mark, 3 beach plates should be driven into the foreshore and linked together.

- A section of chain should run from the beach plates as an attachment point, this is the right bank anchor point.
- A measuring line should be attached to the beach plates walked down the shore and passed to the workboat.
- The workboat can then tow the measuring line out from the shore, downstream at an angle of no greater than 35° to the tide for a distance of 100m (to the bend in the LW channel).
- The line should be tensioned and at this point 3 x 50kg anchors should be set with anchor chains shackled together and buoyed. This will be the centre anchor point.
- The measuring line should then be continued upstream for a further 100m at an angle of no greater than 35° to the tide to the left bank.
- The line should be tensioned and at this point and suitably above the high water mark 3 beach plates should be driven into the ground.
- The plates should be linked together, and a section of chain run from the beach plates as an attachment point. This will form the left bank anchor point.
- The measuring line can now be recovered.

Note: Allowance must be made to include a Linear Winch in the boom line.

- A linear winch should be attached to the right bank anchor point with tensioning cable fully extended and a towing bridle attached.
- With the first section attached to the towing bridle 200m of shore sealing boom should assembled along the foreshore in-line with the main channel mooring point.
- A towing bridle should be attached 100m along the boom as a connection point for the centre mooring point.
- A towing bridle should be connected to the final section of boom and all air chambers inflated.
- When ready the shallow draft workboat should tow the lead end of the boom out from the shore and make the connection to the left bank anchor point.
- The workboat should then pick up the boom centre towing bridle and make the connection to the centre anchor point.
- The linear winch can now be operated from the right bank to remove the slack from the boom.
- At approximately 40m intervals 15kg intermediate anchors should be laid up and down stream of the boom. Anchors must be fitted with trip lines.
- When it has been confirmed that the boom is in the correct position, the water chambers can be ballasted.
- The workboat must stand by to adjust the moorings as the boom is first influenced by the incoming tide.

OIL RECOVERY AND OIL STORAGE:

The boom at this site is to prevent the migration of pollution along the creek and impacting onto the areas of salt marsh beyond the boom deployment. The boom would corral oil to the right bank for recovery. Vacuum recovery would be the preferred method of recovery at this site. Access to the boom cusp can be gained for tractor vacs and light weight vacuum equipment via the metalled track that runs along the top of the erosion defence wall or from the metalled track that runs parallel to the wall inside the marsh area. Temporary storage facilities could be established in the area of hard standing inside the erosion defence wall. Consideration must be made not to block the access track for evacuation of any temporary storage tanks erected and permission must be gained from the landowner.

BOOM RECOVERY:

- The boom should be recovered at high water slack.
- The water chamber valves on all sections of shore sealing boom should be opened.
- All intermediate anchor lines should be released.

- The workboat should release the securing lines from the centre channel and the left bank anchor points.
- The workboat should then tow the boom to the right bank to be recovered by the shore team.
- The shore team on the beach should now land the boom and the workboat should guide the trailing end back to the shore as it is recovered.
- Constant radio communications must be maintained with the shore and workboat to successfully land the boom.
- All sections of the boom can now be dismantled and returned to the equipment lay down area.
- All beach plates and anchors should now be recovered, and a careful visual inspection of the site should be carried out to ensure all equipment has been recovered.

CLIFFE CREEK
A boom plan has been developed for Cliffe Creek following the assumption that equipment resources and experienced personnel are available for deployment. The boom has been identified as physically achievable and would utilise the boom collection properties combined with access practicality for deployment and the recovery of pollution.

Factors that have contributed to boom site identification include:

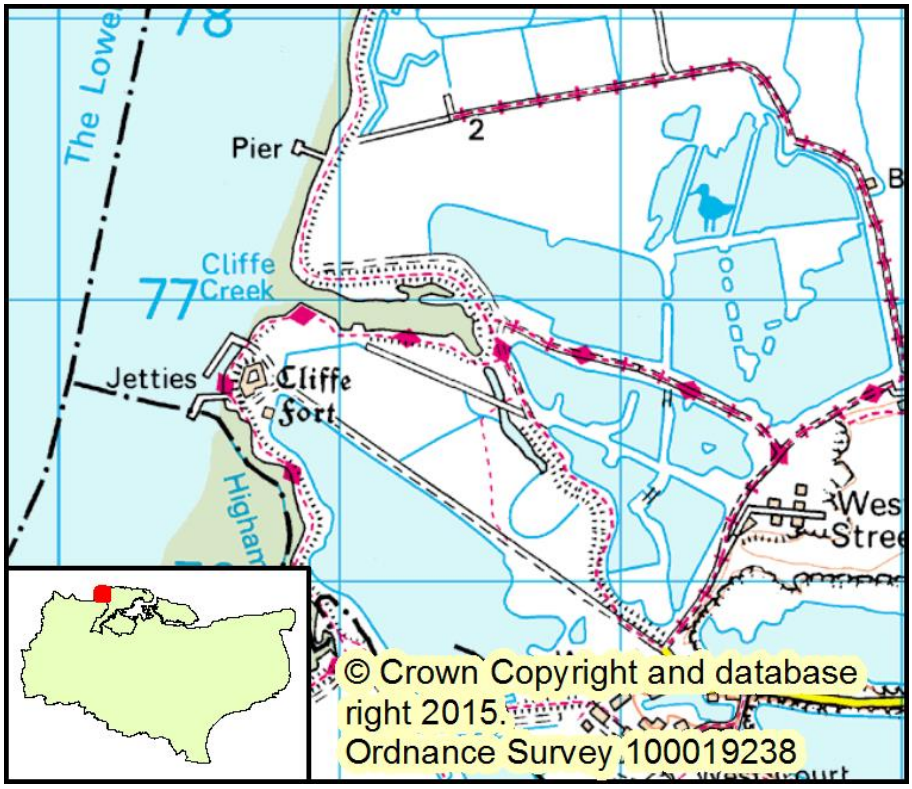
- To provide protection of sensitive sites.
- Shore substrate.
- Access for deployment.
- Suitability for deployment of recovery equipment.
- Potential for volume of collection.
- Temporary storage facilities; and
- Access for pollution evacuation.

The area of Cliffe Pools holds the environmental designations: SSSI, SPA, RAMSAR, ESA. The deployment of equipment will need to be approved by the relevant Environment Group prior to any deployment.

BOOM DEPLOYMENT:
Vehicle access can be gained to both banks of Cliffe Creek; the right bank access is favourable for rendezvous, equipment stockpile and temporary storage. Access to the left bank would be require the cooperation from the local aggregate firm as a small aggregate pile would require levelling/moving to allow vehicle/JCB access to the left bank.

Chevron Boom OS Grid Ref: 708 771
The chevron boom deployed at Cliffe Creek is to prevent the ingress of pollution into the creek area and that of Cliffe Pools. The chevron boom formation creates collection points on both the right and left banks.

Cliffe Creek



CLIFFE CREEK PROTECTION PLAN

LOCATION:
Cliffe Creek, Medway, Kent (OS Sheet 178 Grid Ref: 708 771)

FLOW RATES:
There is no formal tidal data for this site. The flow rates experienced on the day were neap tides. Following periods of heavy rain, the ebb tidal flow may increase considerably.

SPRING TIDES:
Flood: 1.5 Knots Ebb: 2 knots

NEAP TIDES:
Flood: 1 Knots Ebb: 1.5 Knots

DEFINITIONS:
The following terminology and definitions (used by the Maritime & Coastguard Agency to define ‘Riverbanks’) will be used by all organisations in order to avoid any confusion and to ensure correct deployment of manpower and resources.

The definition is as follows:
"With your back to the ebb tidal flow all locations in front of you will be defined as "downstream" and all locations behind you will be defined as "upstream". To your right hand side will be the right bank and to your left will be the left bank ".

SITE ACCESS AND BOOM LOCATION:
Travelling east on the A2 exit onto the A228 sign posted for Gillingham. Turn left onto the B2000 sign posted for ‘Cliffe’. Upon reaching the village of ‘Cliffe’ turn left off the B2000 onto ‘Rectory Road’, right onto ‘West Street’ and then left onto ‘Salt Lane’. Salt Lane leads to two access gates. From here metalled tracks provide access to the right and left banks at the creek mouth and the boom deployment site. Keys will be required for access, which are held by ‘Brett Marine Aggregates’ for left bank access and ‘RSPB Cooling’ for right bank access.

LOCAL LIAISON:
Medway County Council
Environment Agency
Brett Marine Aggregates
RSPB
Port of London Authority

EQUIPMENT LIST:
Shallow Draft Workboat x1
Safety boat x1
Measuring Line x1
Shore Sealing Boom x360m
Towing bridles x4
Water pump & hoses x1
Air blower and connector x1
Beach Anchor Plates x3
CQR 40kg Anchor x6
Mooring Buoys with trip lines x24
Danforth 15kg Anchors x18
Chain (6m lengths) x26
Warps 10mm x25m x 26
18mm Rope x200m

Sledge Hammer x2
Linear Winch x1
Shackles (min of 2 per mooring point)
VHF Handheld Radios (Channel 10)
CAT Scanner

MANPOWER:
The response to an oil pollution incident at Cliffe Creek will be co-ordinated by a Beach Master. Staff identified by the Beach Master will deploy the booms. Supervisor with training in and a working knowledge of boom deployment will supervise these staff. This group of staff will be referred to as the 'Cliffe Creek Team'.

The Cliffe Creek Team will comprise of the following staff:
Shore Team Boat Team
Beach Master x1 Boat Handler x2
Foreman x1 Coxswain x2
Boom Deployment Crew x10
At the mouth of Cliffe Creek there are large areas of hard-standing on both the left and right bank. Access to these can be gained via the metalled track from Salt Lane. This area is suitable to be utilized as a rendezvous point and equipment lay down area, but permission must be sought from the landowner. The deployment of all equipment and manpower will be co-ordinated by the Beach Master from the RvP.

COMMUNICATIONS:
Marine band channel 10. Mobile phone reception is good on site.

HEALTH AND SAFETY:
All staff should be made aware of health and safety responsibilities. Refer to MCA STOp note 1/98. Personnel working from boats and on the foreshore must wear life jackets at all times. Before beach anchor plates are driven into the foreshore the ground should be checked for underground services with cable avoidance tools. The banks in the area of the deployment are steep with a soft mud riverbed. Staff awareness should be raised to the potential dangers and should not venture onto the mud.

PHYSICAL DESCRIPTION OF THE SITE:
Cliffe Pools are a 237 hectares Royal Society for Protection of Birds nature reserve of saline lagoon, wet pastures salt marsh and mud flats. The lagoons are used by over 200,000 migrating birds and other forms of wildlife and are of national importance as they are one of the few reserves of saline lagoons in the UK. Cliffe Creek is situated at the mouth of Cliffe Pools and has a narrow mouth of approximately 70m wide; at low water the left bank exposes a soft mud inter-tidal substrate backed by a vertical concrete sea defence wall. The right bank has a sloping mud foreshore with areas of rock and sea grass. This is backed by a sloped concrete sea defence wall, beyond which lies the area of 'Cliffe Pools'. The creek opens immediately after the narrow mouth onto to a bay area approximately 800m long by 200m across with shallow sloping mud banks lined with salt marsh. Upstream the creek then narrows onto a sluice gate to a small feed channel for the area of Cliffe Pools.

BOOM CONFIGURATION:
This is an exposed boom, and the length and angle may need to be adjusted to suit the conditions at the time of deployment. The boom should be deployed in a staggered chevron with the apex of the chevron stemming from the centre of the channel just inside the mouth of Cliffe Creek. The chevron should consist of an 80m right leg of shore sealing boom and a 280m left leg of shore sealing boom. Each leg of the chevron should be deployed at an angle of no greater than 30º to the tidal flow.

BOOM DEPLOYMENT:
The boom at this site should be deployed at low water slack.

- The area of hard standing adjacent to the right bank sea defence wall would be the most suitable area to be used as equipment lay down area, but permission should be sought from the landowner.
- Permanent moorings are not available at this site.

Right Bank

- At OS Grid Ref: 710 771 and at a point suitably above the high water mark, 3 beach plates should be driven into the foreshore and linked together.
- A section of chain should run from the beach plates as an attachment point, this would form the right bank anchor point.
- A measuring line should be attached to the anchor point, walked downstream at an angle of no greater than 30º to the tidal flow for a distance of 80m to the centre of the channel and the creek mouth.
- The line should be tensioned and at this point 3 x 40kg anchors should be set with anchor chains shackled together and buoyed.
- This will be the channel anchor point. The measuring line can now be recovered.

Note: Allowance must be made to include a Linear Winch in the boom line.

- A linear winch should be attached to the beach anchor point with tensioning cable fully extended and a towing bridle attached.
- With the first section attached to the towing bridle, 80m of shore sealing boom should assembled across the channel in-line with the main channel anchor point.
- A towing bridle should be attached to the final section of boom and the connection to the channel anchor point completed.
- All air chambers should be inflated.
- The linear winch can now be operated from the right bank to tension the boom.
- At approximately 40m intervals 15kg intermediate anchors should be laid up and down stream of the boom. Anchors must be fitted with trip lines.
- When it has been confirmed that the boom is in the correct position, the water chambers can be ballasted.
- The workboat must stand by to adjust the moorings as the boom is first influenced by the incoming tide.

Left Bank

- A measuring line should be attached to the channel anchor point and walked upstream to the left bank at an angle of no greater than 30º to the tidal flow for a distance of 280m.
- The line should be tensioned and at this point adjacent to the left bank 3 x 40kg anchors should be set and buoyed with anchor chains shackled. This will form the left bank anchor point.
- The measuring line can now be recovered.

Note: Allowance must be made to include a Linear Winch in the boom line.

- A linear winch should be attached to the left bank anchor point with tensioning cable fully extended and a towing bridle attached.
- 280m of shore sealing boom should assembled along the channel in-line with the channel anchor point and a towing bridle attached to the final section.
- The final section of boom should be connected to the channel anchor point.
- All air chambers should be inflated.
- At the left bank the linear winch towing bridle should be attached 1 section in from the end of the boom leaving a trailing section.
- The linear winch should now be operated to remove the slack from the boom.

- At approximately 40m intervals 15kg intermediate anchors should be laid up and down stream of the boom. Anchors must be fitted with trip lines.
- The trailing section should be secured against the embanked concrete wall to create a bank seal.
- When it has been confirmed that the boom is in the correct position, the water chambers can be ballasted.
- The workboat must stand by to adjust the moorings as the boom is first influenced by the incoming tide.

OIL RECOVERY AND OIL STORAGE:
The boom at this site is to prevent the migration of pollution into Cliffe Creek and from impacting on the areas of salt marsh and mud flats within. The chevron formation of this boom would corral oil to both the left and right banks from recovery.

Right Bank
Vacuum recovery would be the preferred method of recovery at this site. Access to the boom cusp where pollution would collect is good via the metalled track vacuum recovery and all types of skimmer could be deployed. This area would also be suitable for the construction of temporary storage facilities, but permission must be gained from the landowner.

Left Bank
Vacuum recovery would be the preferred method of recovery at this site. Access to the boom cusp is via a narrow rough track that would restrict recovery to tractor vacs and small lightweight vacuum units. There is a small area of hard standing adjacent to the boom cusp where temporary storage facilities could be erected and from where skimmers could be deployed. Tractor vac's or similar would be required for the extraction of temporary storage facilities in this area.

BOOM RECOVERY:
- The boom should be recovered at high water slack.
- The water chamber valves on all sections of shore sealing boom should be opened.
- All intermediate mooring lines should be released.
- The workboat should release the right bank chevron from the channel anchor point.
- The shore team on the right bank should now land the boom and the workboat should guide the trailing end back to the shore as it is recovered.
- Constant radio communications must be maintained with the shore and workboat to successfully land the boom.
- The workboat should release the left bank chevron from the channel anchor point.
- The shore team on the left bank should now land the boom and the workboat should guide the trailing end back to the shore as it is recovered.
- Constant radio communications must be maintained with the shore and workboat to successfully land the boom.
- All sections of the boom can now be dismantled and returned to the equipment lay down area.
- All anchors and beach plates should now be recovered, and a careful visual inspection of the site should be carried out to ensure all equipment has been recovered.

SWANSCOMBE MARSHES
The following booming plan has been developed for the deployments at Swanscombe Marshes following the assumption that equipment resources and experienced personnel are available for deployment. The booms have been identified as physically achievable and would utilize the boom collection properties combined with access practicality for deployment and the recovery of pollution.

Factors that have contributed to boom site identification include:

- To provide protection of sensitive sites.
- Shore substrate.
- Access for deployment.
- Suitability for deployment of recovery equipment.
- Potential for volume of collection.
- Temporary storage facilities; and
- Access for pollution evacuation.

ENVIRONMENTAL ASPECT:
In the event of a spill requiring the realisation of any of these booms and dependant on the tier gradient of the spill. The 'Environment Group' of the Integrated Emergency Management structure will need to determine if these booms can be deployed balancing the environmental impact of 'not responding', against the impact of access for boom deployment equipment and recovery of pollution. The deployment of equipment will need to be approved by the relevant environmental group prior to any deployment.

BOOM DEPLOYMENTS:
Access to Swanscombe Marshes is via a metalled track through a rail link construction area, the access routes/restrictions may be affected during and upon completion of the proposed rail development.

Boom 1
Spur Boom OS Grid Ref: 607 767
Boom 1 is a spur boom to prevent any pollution travelling upstream on the flood tide from impacting on the area of marshes along the riverbank at Broadness Lighthouse.

Boom 2:
200m Spur Boom OS Grid Ref: 605 766
Boom 2 is a spur boom to corral any pollution travelling downstream on the ebb tide from impacting on the areas of salt marsh at Broadness Lighthouse.

Boom 3:
80m Collection Boom OS Grid Ref: 605 765
Boom 3 is a collection boom deployed across the mouth of the creek entrance. This boom will deflect pollution to the left bank for recovery. Depending on the size of the oil spill, booms 2 & 3 could be deployed simultaneously to create a large collection area in relatively calm water for the collection of pollution. Advice from the Environment Group would need to be obtained for this strategy.

SWANSCOMBE MARSHES PROTECTION PLAN

LOCATION:
Swanscombe, Kent (OS Sheet 177 Grid Ref: 605 765)

FLOW RATES:
There is no formal tidal data for this site. The flow rates experienced on the day were neap tides. Following periods of heavy rain, the ebb tidal flow may increase considerably.

SPRING TIDES:
Flood: 1.5 Knots Ebb: 2.5 knots

NEAP TIDES:
Flood: 1 Knot Ebb: 2 Knots

DEFINITIONS:
The following terminology and definitions (used by the Maritime & Coastguard Agency to define ‘riverbanks’) will be used by all organisations in order to avoid any confusion and to ensure correct deployment of manpower and resources.

The definition is as follows: "With your back to the ebb tidal flow all locations in front of you will be defined as "downstream" and all locations behind you will be defined as "upstream". To your right hand side will be the right bank and to your left will be the left bank".

SITE ACCESS AND BOOM LOCATION:
The access to the site was across a building site area that is under development as part of a rail link. The following directions are for access to the boom deployment site at the time of the visit.

Travelling eastbound on the A226 turn left into Manor Way that leads through an industrial area. Turn left signed as Manor Way, continue past a wheel washing station and across a derelict concrete area, this would be suitable as equipment lay down area. At the end of the concrete area turn right onto a porous metalled road, take the right fork, the right fork then the left fork. This will lead over a hill overlooking a small creek with derelict boats surrounded by open areas of grassland. On approach to the creek, at the bottom of the hill a right turn onto a grass track. Upon entering the grass an immediate left along a fading track will lead to Broadness Lighthouse and the boom deployment area.

LOCAL LIAISON:
Kent County Council
Kent Police
Environment Agency
Port of London Authority

RESOURCES:
The response to an oil pollution incident at Swanscombe Marshes will be co-ordinated by a Beach Master. Staff identified by the Beach Master will deploy the booms. A Supervisor with training in and a working knowledge of boom deployment will supervise these staff. This group of staff will be referred to as the ‘Swanscombe Marshes Team’.

The Swanscombe Marshes Team will comprise of the following staff:
Shore Team Boat Team
Beach Master x1 Boat Handler x2
Foreman x1 Coxswain x2

Boom Deployment Crew x12
The redundant area of concrete on the approach track would be suitable as a rendezvous point and equipment lay down area. From here equipment would need to be mobilised to the site by 4WD vehicle or similar but permission must be sought from the landowner. The deployment of all equipment and manpower will be co-ordinated by the Beach Master from the RvP.

COMMUNICATIONS:
Marine band channel 10
Mobile phone reception is good on site.

HEALTH AND SAFETY:
All staff should be made aware of health and safety responsibilities. Refer to MCA STOp note 1/98. Personnel working from boats and on the foreshore must wear life jackets at all times. Before beach anchor plates are driven into the foreshore the ground should be checked for underground services with a cable avoidance tools. The banks in the area of the deployment uneven with areas of soft mud, staff awareness should be raised to the potential dangers.

PHYSICAL DESCRIPTION OF THE SITE:
Located approximately 4 kilometres east from the QEII Bridge on the right bank of the Thames. The marshes are situated on the right bank of a bend in the Thames. The marshes are composed of a group consisting of Swanscombe, Botany and Broadness Salt Marsh. These converge to form a small headland, at the point of which, a small light mast 'Broadness Lighthouse' is situated. The shore in the area of Broadness Lighthouse is lined with salt marsh. The riverbank is composed of a shallow sloping compacted mud bank backed by a large open area of rough grassland. A creek is situated on the upstream side of the marshes and adjacent to the area of salt marsh used by locals to tend to a varied collection of beached boats. A metalled track provides access through the marshes to the creek where the track terminates at a grassed area.

BOOM OPTIONS:
The bend in the river and the headland offer some protection from wind and tide exposure. As a result, the potential exists to deploy short spur booms out into the Thames on both east and west sides of the marshes and/or to deploy a boom within the creek.
Boom 1: 200m Spur Boom OS Grid Ref: 607 767
Boom 2: 200m Spur Boom OS Grid Ref: 605 766
Boom 3: 80m Collection Boom OS Grid Ref: 605 765

BOOM 1

BOOM CONFIGURATION:
A single spur boom could be deployed from the right bank, east of the Broadness Lighthouse into the River Thames. The boom should be deployed at an angle of no greater than 30º to the tidal flow for a maximum distance of 200m. This is an exposed site and although a boom of 200m could be deployed allowance must be made in the boom length and angle to suit the conditions on the day.

EQUIPMENT LIST:
Shallow Draft Workboat x 1
Safety boat x 1
All-Terrain Vehicle x 1
Measuring Line x 1
Shore Sealing Boom x 50m
Skirt Boom x 150m

Towing bridles x 2
Water pump & hoses x 1
Air blower and connector x 1
Beach Anchor Plates x 4
CQR 50kg Anchor x 3
Mooring Buoys with trip lines x 13
Danforth 15kg Anchors x 10
Chain (6m lengths) x 14
Warps 10mm x 25m x 14
18mm Rope x 200m
Sledge Hammer x 2
Linear Winch x 1
Shackles (min of 2 per mooring point)
VHF Handheld Radios
CAT Scanner

BOOM DEPLOYMENT:
The boom at this site could be deployed at high or low water slack. The area of hard standing on the metalled approach road would be the most suitable area to be used as equipment lay down area, but permission should be sought from the landowner.

- All anchors should be set with trip lines attached.
- Permanent moorings are not available at this site.
- On the right bank at OS Grid Ref: 607 767, and at a point suitably above the high water mark, 4 beach plates should be driven into the foreshore and linked together.
- A section of chain should be run from the beach plates as an attachment point, this would form the main right bank anchor point.
- A measuring line should be attached to the right bank anchor point and the workboat should toe the line downstream at an angle of no greater than 30º to the tide for a distance of 200m.
- The line should be tensioned and at this point 3 x 50kg anchors should be set and buoyed with trip lines attached. This will form the channel anchor point.
- The measuring line can now be recovered.

Note: Allowance must be made to include a Linear Winch in the boom line.

- A linear winch should be attached to the beach anchor point with tensioning cable fully extended and a towing bridle attached.
- The 50m of shore sealing boom followed by 150m of skirt boom should be assembled along the foreshore in-line with the main channel mooring point.
- All air chambers should be inflated, and a towing bridle connected to the final section of boom.
- When ready the shallow draft workboat should tow the boom out from the shore and make the connection to the main channel anchor point.
- The linear winch should now be operated to remove the slack from the boom.
- At approximately 50m intervals intermediate anchors should be laid up and downstream of the boom. Anchors must be fitted with trip lines.
- When it has been confirmed that the boom is in the correct position, the water chambers can be ballasted.
- The workboat must stand by to adjust the moorings as the boom is first influenced by the incoming tide.

BOOM 2

BOOM CONFIGURATION:
A single spur boom could be deployed from the right bank of the creek mouth from OS Grid Ref: 605 766. The boom should be deployed at an angle of no greater than 30º to the tidal

flow for a maximum distance of 200m. This is an exposed site and although a boom of 200m could be deployed allowance must be made in the boom length and angle to suit the conditions on the day.

EQUIPMENT LIST:
Shallow Draft Workboat x 1
Safety boat x 1
All-Terrain Vehicle x 1
Measuring Line x 1
Shore Sealing Boom x 50m
Skirt Boom x 150m
Towing bridles x 2
Water pump & hoses x 1
Air blower and connector x 1
Beach Anchor Plates x 4
CQR 50kg Anchor x 3
Mooring Buoys with trip lines x 13
Danforth 15kg Anchors x 10
Chain (6m lengths) x 14
Warps 10mm x 25m x 14
18mm Rope x 200m
Sledge Hammer x 2
Linear Winch x 1
Shackles (min of 2 per mooring point)
VHF Handheld Radios
CAT Scanner

BOOM DEPLOYMENT:
The boom at this site could be deployed at high water slack. The area of hard standing on the metalled approach road would be the most suitable area to be used as equipment lay down area, but permission should be sought from the landowner.

- All anchors should be set with trip lines attached.
- Permanent moorings are not available at this site.
- Working from the right bank at OS Grid Ref: 605 766, and at a point suitably above the high water mark, 4 beach plates should be driven into the foreshore and linked together.
- A section of chain should be run from the beach plates as an attachment point, this would form the main right bank anchor point.
- A measuring line should be attached to the right bank anchor point and the workboat should tow the line downstream at an angle of no greater than 30º to the tide for a distance of 200m.
- The line should be tensioned and at this point 3 x 50kg anchors should be set and buoyed with trip lines attached. This will form the channel anchor point.
- The measuring line can now be recovered.
- **Note:** Allowance must be made to include a Linear Winch in the boom line.
- A linear winch should be attached to the beach anchor point with tensioning cable fully extended and a towing bridle attached.
- The 50m of shore sealing boom followed by 150m of skirt boom should be assembled along the foreshore and flaked at the water's edge in-line with the main channel mooring point.
- All air chambers should be inflated, and a towing bridle connected to the final section of boom.
- When ready the shallow draft workboat should tow the boom out from the shore and make the connection to the main channel anchor point.

- The linear winch should now be operated to remove the slack from the boom.
- At approximately 50m intervals intermediate anchors should be laid up and downstream of the boom. Anchors must be fitted with trip lines.
- When it has been confirmed that the boom is in the correct position, the water chambers can be ballasted.
- The workboat must stand by to adjust the moorings as the boom is first influenced by the incoming tide.

BOOM 3

BOOM CONFIGURATION:
80m of shore sealing boom could be deployed from the left bank across the mouth of the creek. The boom should be deployed at an angle of no greater than 35° to the tidal flow. The Creek offers some protection to the boom deployment; however, the boom length and angle may need to be modified to suit the conditions on the day.

EQUIPMENT LIST:
Shallow Draft Workboat x 1
Safety boat x 1
All-Terrain Vehicle x 1
Measuring Line x 1
Shore Sealing Boom x 80m
Towing bridles x 2
Water pump & hoses x 1
Air blower and connector x 1
Beach Anchor Plates x 6
Mooring Buoys with trip lines x 2
Danforth 15kg Anchors x 2
Chain (6m lengths) x 4
Warps 10mm x 25m x 4
18mm Rope x 200m
Sledge Hammer x 2
Linear Winch x 1
Shackles (min of 2 per mooring point)
VHF Handheld Radios
CAT Scanner

BOOM DEPLOYMENT:
The boom at this site should be deployed at high water slack. The area of hard standing on the metalled approach road would be the most suitable area to be used as equipment lay down area, but permission should be sought from the landowner.

- All anchors should be set with trip lines attached.
- Permanent moorings are not available at this site.
- On the left bank at OS Grid Ref: 605 764, and at a point suitably above the high water mark, 3 beach plates should be driven into the foreshore and linked together.
- A section of chain should be run from the beach plates as an attachment point, this would form the main right bank anchor point.
- A measuring line should be attached to the right bank anchor point and the workboat should tow the line across the creek at an angle of no greater than 35º to the tide for a distance of 80m to the right bank.
- The line should be tensioned and at this point and suitably above the high water mark, 3 beach plates should be driven into the shore.
- The beach plates should be secured together, and a section of chain should be run from the beach plates as an attachment point.

- This would form the right bank anchor point.
- The measuring line can now be recovered.

Note: Allowance must be made to include a Linear Winch in the boom line.

- A linear winch should be attached to the left bank anchor point with tensioning cable fully extended and a towing bridle attached.
- The 80m of shore sealing boom should be assembled along the foreshore in-line with the right bank anchor point.
- All air chambers should be inflated, and a towing bridle connected to the final section of boom.
- When ready the shallow draft workboat should tow the boom out from the shore and across to the right bank where the connection to the right bank anchor point can be made.
- The linear winch should now be operated to remove the slack from the boom.
- At approximately 40m intervals intermediate anchors should be laid up and downstream of the boom. Anchors must be fitted with trip lines.
- When it has been confirmed that the boom is in the correct position, the water chambers can be ballasted.
- The workboat must stand by to adjust the moorings as the boom is first influenced by the incoming tide.

OIL RECOVERY AND OIL STORAGE FOR BOOMS 1,2 & 3:

All the booms deployed at Swanscombe Marshes are to prevent any oil migrating along the bank and impacting on the areas of salt marsh at Broadness Lighthouse.

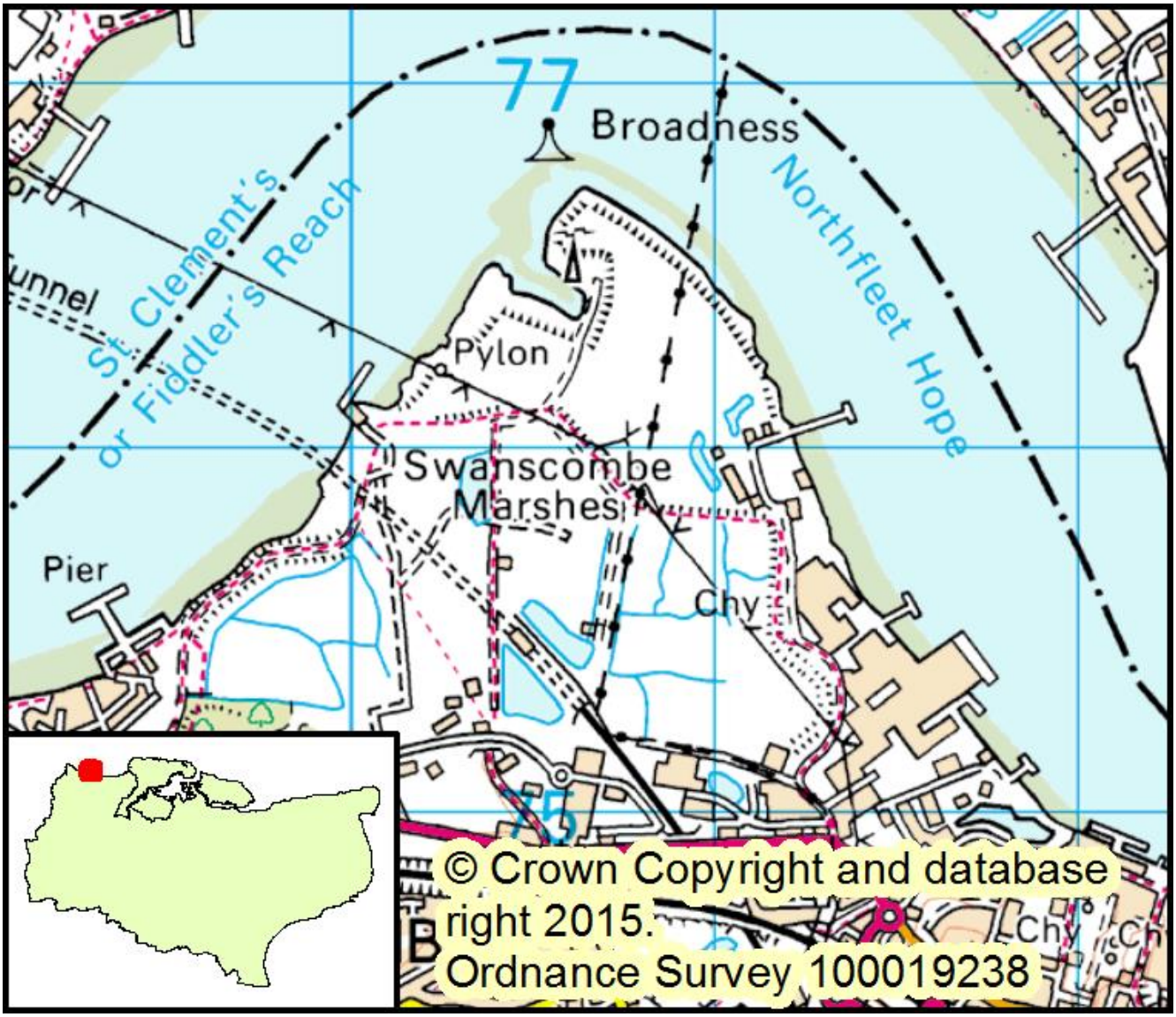
Boom 1 would corral oil to the shore for recovery. Boom 2 would corral oil into the area of the creek mouth and used in conjunction with boom 3 would corral oil to the shore for collection. Vacuum recovery would be the preferred method of recovery at this site. The access track restricts the type of equipment that could be mobilised to this site. Tractor Vacs and lightweight vacuum recovery modules could be mobilised to the relevant boom cusp where pollution would collect. There are areas of open grassland adjacent to each of the boom deployments that would be suitable for deployment of temporary storage facilities, but care must be taken to ensure tanks are deployed on level ground and permission must be gained from the landowner.

BOOM RECOVERY FOR BOOMS 1, 2 & 3:

The boom can be recovered at all states of the tide; the following is for a high water slack recovery.

- The water chamber valves on all sections of shore sealing boom should be opened.
- All intermediate mooring lines should be released.
- For booms 1 & 2 the workboat should release the main channel anchor line. For boom 3 the right bank anchor line.
- The shore team on the shore should now land the boom and the workboat should guide the trailing end back to the shore as it is recovered.
- Constant radio communications must be maintained with the shore and workboat to successfully land the boom.
- All sections of the boom can now be dismantled and returned to the equipment lay down area.
- All anchors should now be recovered, and a careful visual inspection of the site should be carried out to ensure all equipment has been recovered.

SWANSCOMBE MARSHES



DARTFORD CREEK (RIVER DARENT)
A booming plan has been developed at the River Darent following the assumption that equipment resources and experienced personnel are available for deployment. The boom has been identified as physically achievable and would utilize the boom collection properties combined with access practicality for deployment and the recovery of pollution.

Factors that have contributed to boom site identification include:

- To Provide protection of sensitive sites.
- Shore substrate.
- Access for deployment.
- Suitability for deployment of recovery equipment.
- Potential for volume of collection.
- Temporary storage facilities; and
- Access for pollution evacuation.

The deployment of equipment will need to be approved by the relevant environmental group prior to any deployment.

BOOM DEPLOYMENT:
The high tidal flow rates and the relatively narrow channel severely limit the possibility for a successful boom deployment at this site. There are no areas evident where the tidal flow eases to allow a collection area to be utilised by a boom deployment. The boom deployment identified in this location is at a very shallow angle to the tidal flow to prevent being overwhelmed and risking structural damage to the boom. The area where the boom cusp is created as a collection area at the left bank would be subject to turbulence from the tidal flow. This turbulence against the boom would cause some oil to be pushed under the boom and continue upstream.
A second boom should be deployed approximately 50m upstream to collect any pollution that passes the first boom. Primary Boom location OS Grid Ref: 536 776
Secondary Boom location OS Grid Ref: 536 772

DARTFORD CREEK (RIVER DARENT) PROTECTION PLAN

LOCATION:
Dartford Creek **(**River Darent), Kent (OS Sheet 177 Grid Ref: 540 778)

FLOW RATES:
There is no formal tidal data for this site. The flow rates experienced on the day were neap tides. Following periods of heavy rain, the ebb tidal flow may increase considerably.

SPRING TIDES:
Flood: 2 Knots Ebb: 2.5 knots

NEAP TIDES:
Flood: 1 Knots Ebb: 1.5 Knots

DEFINITIONS:
The following terminology and definitions will be used by all organisations in order to avoid any confusion and to ensure correct deployment of manpower and resources.

The definition is as follows: "With your back to the ebb tidal flow all locations in front of you will be defined as "Down Stream" and all locations behind you will be defined as "Up Stream". To your right hand side will be the right bank and to your left will be the left bank".

SITE ACCESS AND BOOM LOCATION:
From the M25 turn onto the A206 travelling westbound to Erith. From the A206 in Erith follow signs for Darent Industrial Estate and Manor Road. Upon entering Darent Industrial Estate take the second right into Maypole Crescent; this will lead to an access road for an Environment Agency sluice gate. There is an area of hard standing adjacent to the sluice gate from where an access track barred by two locked gates runs along the riverbank. This track passes a large marker post from where the boom can be deployed.

LOCAL LIAISON:
Kent County Council
Kent Police
Environment Agency
Port of London Authority

EQUIPMENT LIST:
Shallow Draft Workboat x 1
Safety boat x 1
Argocat or similar x 1
Measuring Line x 1
Shore Guardian x 290m
Towing bridles x 2
Water pump & hoses x 1
Air blower and connector x 1
Beach Anchor Plates x 6
Mooring Buoys with trip lines x 20
Danforth 15kg Anchors x 28
Chain (6m lengths) x 30
Warps 10mm x 25m x 28
18mm Rope x 200m
Sledge Hammer x 2
Linear Winch x 1
Shackles (min of 2 per mooring point)
VHF Handheld Radios (Channel 10)
CAT Scanner

RESOURCES:
The response to an oil pollution incident at the River Darent will be coordinated by a Beach Master. Staff identified by the Beach Master will deploy the booms. A Supervisor with training in and a working knowledge of boom deployment will supervise these staff. This group of staff will be referred to as the ‘Darent Team’.

The Darent Team will comprise of the following staff:
Shore Team Boat Team
Beach Master x 1 Boat Handler x 2
Foreman x 1 Coxswain x 2
Boom Deployment Crew x 10
The access road to the sluice gate affords an area large enough to be utilized as a rendezvous point and equipment lay down area, but permission must be sought from the landowner. The deployment of all equipment and manpower will be co-ordinated by the Beach Master from the RvP.

COMMUNICATIONS:
Marine band channel 10
Mobile phone reception is good on site.

HEALTH AND SAFETY:
All staff should be made aware of health and safety responsibilities. Refer to MCA STOp note 1/98.
Personnel working from boats and on the foreshore must wear life jackets at all times. Before beach anchor plates are driven into the foreshore the ground should be checked for underground services with a cable avoidance tools. The banks in the area of the deployment are steep with a soft mud riverbed. Staff awareness should be raised to the potential dangers and should not venture onto the mud.

PHYSICAL DESCRIPTION OF THE SITE:
The Dartford Creek (River Darent) is located on the south bank of the Thames 3km upstream from the Dartford Tunnel. The river is approximately 150m wide at the mouth, narrowing upstream. The river runs through Dartford, Eynsford, Shoreham and beyond. The River Darent is composed of a soft mud riverbed with shallow sloping banks within the inter-tidal area. These are backed by compacted earth riverbanks topped with rough grass slopes.

The Darent Industrial Estate backs the left bank at the river mouth from where a main road provides access to a large Environment Agency tidal defence barrier that spans the river. There is a large tarmac area which serves as the approach to the sluice gate, from here a gravel track barred from vehicles by a locked gate provides a public footpath that runs along the length of the left bank. The right bank opens onto rough grass fields and the Dartford Marshes.

BOOM CONFIGURATION:
The boom at this site should be deployed at high water slack. The narrow channel and the very high flow rates require the boom to be deployed at a very shallow angle to the tidal flow. A boom 250m in length of shore sealing boom could be deployed from the left bank OS Grid Ref: 536 776 from a position adjacent to a light marker and the boom should be deployed at an angle of no greater than 25º to the tidal flow. This boom should be deployed in conjunction with a spur boom deployed upstream as a secondary catchment area in the event that pollution passes under the boom due to the high flow rates.

BOOM DEPLOYMENT:
The boom at this site should be deployed at high water slack.

- The approach road to the tidal defence barrier would be a suitable area to be used for equipment lay down, but permission should be sought from the landowner.
- Equipment would need to be mobilised to the boom deployment site via the gravel access track.
- Permanent moorings are not available at this site.
- Approximately 600m upstream from the tidal defence barrier at a point suitably above the HW mark, 3 beach plates should be driven into the foreshore and secured together.
- A section of chain should run from the beach plates as an attachment point, this is the left bank anchor point.
- A measuring line should be attached to the beach plates walked down the shore and passed to the workboat.
- The workboat can then tow the measuring line downstream at an angle of no greater than 25º to the tide for a distance of 290m and across to the right bank.
- The line should be tensioned, at this point and suitably above the high water mark, 3 beach plates should be driven into the foreshore and secured together.
- The plates should be linked together, and a section of chain run from the beach plates as an attachment point. This will form the right bank anchor point.
- The measuring line can now be recovered.

Note: Allowance must be made to include a Linear Winch in the boom line.

- A linear winch should be attached to the left bank anchor point with tensioning cable fully extended and a towing bridle attached.
- With the first section attached to the towing bridle 290m of shore sealing boom should assembled along the foreshore in-line with the main channel mooring point.
- A towing bridle should be connected to the final section of boom and all air chambers inflated.
- When ready the shallow draft workboat should tow the lead end of the boom out from the shore and make the connection to the right bank anchor point.
- The linear winch can now be operated from the left bank to remove the slack from the boom.
- At approximately 20m intervals 15kg intermediate anchors should be laid up and down stream of the boom. Anchors must be fitted with trip lines.
- When it has been confirmed that the boom is in the correct position, the water chambers can be ballasted.
- The workboat must stand by to adjust the moorings as the boom is first influenced by the incoming tide.

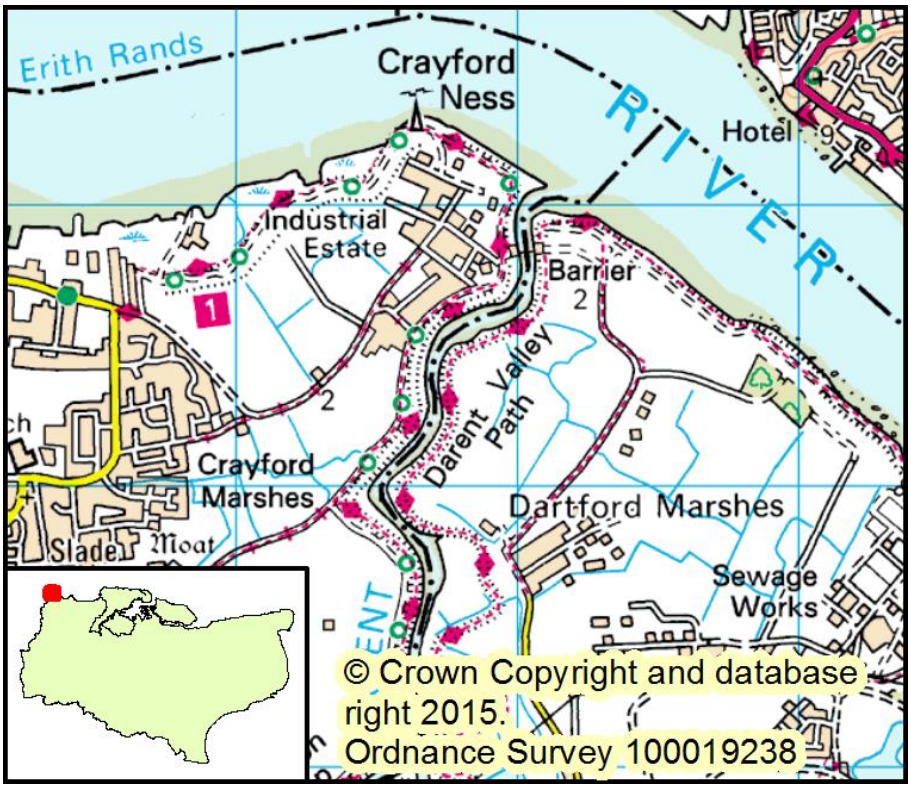
OIL RECOVERY AND OIL STORAGE:

The boom at this site is to deflect pollution to the left bank for recovery. Vacuum recovery would be the preferred method of recovery at this site. Access to the boom cusp can be gained via the metalled track from the equipment lay down area. Skimmers could also be deployed from bank into the boom cusp area. The access track and adjacent ground would be suitable for temporary storage facilities. Care must be taken in the placement of storage to ensure tanks are positioned level and that access is not restricted for evacuation, permission must be gained from the landowner.

BOOM RECOVERY:

- The boom can be recovered at all states of the tide.
- The water chamber valves on all sections of shore sealing boom should be opened.
- All intermediate mooring lines should be released.
- The workboat should release the securing line from the right bank.
- The shore team on the left bank should now land the boom and the workboat should guide the trailing end back to the shore as it is recovered.
- Constant radio communications must be maintained with the shore and workboat to successfully land the boom.
- All sections of the boom can now be dismantled and returned to the equipment lay down area.
- All anchors and beach plates should now be recovered, and a careful visual inspection of the site should be carried out to ensure all equipment has been recovered.

Location map



Dartford Creek (River Darent) boom

Shore sealing boom and right hand bank mooring point

Shore sealing boom and left hand bank mooring point

7. BEACHMASTER CHECKLIST

1) Check that the site identified by the Integrated Emergency Management structure as the site requiring booming is the correct site (the check will confirm that oil has or is likely to come ashore, and that a booming plan exists for this site).
2) Ensure access to site is available, telephone Kent County Council
3) Establish Rendezvous Point.
4) Hold a team meeting with all staff members to make them aware of the objectives and all associated Health and Safety issues.
5) Instruct foremen and boat crew in the deployment of the boom(s).
6) Identify oil spill clean-up areas and appoint foremen to arrange clean up.
7) Arrange for temporary beachhead storage facilities.
8) Arrange for removal of oil from site to approved (licensed) disposal site(s).
9) As advised by the Integrated Emergency Management structure arrange for boom(s) and associated equipment to be removed from site and surrounding area and instruct foremen to arrange.
10) Advise Integrated Emergency Management structure when equipment has been recovered and seek advice as to any future requirements.
11) Ensure all vehicles and manpower have departed the site and the RvP.

Maritime and Coastguard Agency Environment Agency

Maritime and Coastguard Agency

OTTERHAM CREEK PROTECTION PLAN

Note: This is the operational plan dealing only with physical boom deployment at the site referred to here. Integrated Emergency Management structure will determine priorities for booming as part of the overall shoreline protection strategy. Validation work carried out by MCA & EA in partnership.

DATE OF VALIDATION: 16th June 1999

LOCATION: Map Grid Ref: TQ 831 671

WEATHER The creek is exposed to northerly winds

FLOW RATES: Accurate tidal flow data is not available for Otterham Creek. The figures quoted are best estimates from information gathered on the day.

SPRING TIDES: Flood 2 knots Ebb 3 knots

NEAP TIDES: Flood 1 knot Ebb 1.5 knots

DEFINITIONS:
The following terminology and definitions (used by the Environment Agency to define river banks) will be used by all organisations in order to avoid any confusion, and to ensure correct deployment of manpower and resources.

The definition is as follows: "With your back to the ebb flow of the river, all locations in front of you will be defined as "Down Stream" and all locations behind you will be defined as "Up Stream". To your right hand side will be the right bank and to your left will be the left bank"

Access to the boom site can be gained via the Motney Hill Treatment Works on the left bank. Access to the right bank is via Bayford Farm.

LOCAL LIAISON:
Medway Council
Environment Agency

EQUIPMENT LIST:

Work boat, 100 HPS engine	x2
Dinghy Safety Boat	x1
Marker Line and Floats	x1
Shore Sealing Boom	x600
Towing Bridles	x2
Water Pump & Hoses	x2
Air Blower and Connectors	x2
Anchors x 15kg	x22
Ground Anchor Plates	x6
Trip Buoys and Lines	x22
Mooring Chain x 6m	x24
Shackles	x50
Warps 18mm x 25m	x24
Shovels	x2
Sledge Hammer	x2
Tirfor Winch	x2
Argocat or similar	x1
Chest Waders	x4
VHF Handheld Radios (Channel 10)	x4

Mobile Phones: Vodafone & Cellnet (reception is adequate over most of the site)

RESOURCES:
The response to an oil pollution incident at Otterham Creek will be co-ordinated by a Beach Master designated through the Integrated Emergency Management structure. The response may include the deployment of oil booms to prevent/minimise the spread of oil inshore.

Staff identified by the Beach Master will deploy the booms, and a supervisor with a working knowledge of boom deployments will supervise these staff. This group of staff will be referred to as the Otterham Creek Team.

The Otterham Creek Team will comprise the following staff.

Beach Master	x1
Foreman	x1
Boom Handlers	x12
Boat Crew (coxwain, boat handler)	x3

The Motney Hill Treatment Works site will act as the Rendezvous Point (RvP), and equipment lay-down area, the deployment of all equipment and manpower will be co-ordinated by the Beach Master at the RvP.

COMMUNICATIONS:
Marine band channel 10. Mobile phone reception is adequate.

HEALTH AND SAFETY:
All staff are to be aware of health and safety responsibilities. Refer to MCA STOp Note 1/97. Before Beach Plates are driven into the foreshore, the area must be scanned for underground services. The workboats must be positioned up and down stream of the boom line before the boom is towed into position.

At this location the lower shore is for the main, soft mud, at no time should personnel venture onto the mud.

PHYSICAL DESCRIPTION OF THE SITE:
Otterham Creek is a part of the Medway Estuary complex. The creek is approximately 400m wide, and 2km long, for most of its length the creek is backed by sea defence walls, and areas of salt marsh. At low water the creek dries almost completely, exposing an intertidal area of very soft mud.

At the head of the creek is a small commercial quay, and there are a number of moorings available for pleasure craft.

Otterham Creek holds the following Environmental Designation: - SSSI.

BOOM DEPLOYMENT:
Permanent mooring points are not available at this site. Before beach holdfasts are driven into the foreshore or bank side, the area must be checked for underground services. The boom at this site can only be deployed at high water slack. Working from the left bank, at a point clearly indicated on the attached boom plan, a beach hold fast should be firmly driven into the fore shore to create the main left bank mooring. A marker line should now be attached to the beach hold fast. The workboat should then tow the line downstream and across to the right bank at an angle of 35º, and for a distance of 600m, with the line tensioned the position of the right bank mooring point will be established. At this point, a beach holdfast should be driven into the foreshore to create the main mooring point right bank. The marker line may now be recovered**.**
Note: Allowance must be made to include a Tirfor winch in the boom line.

The boom will be assembled on the right bank, and sufficient time must be allowed to transport all necessary equipment from the laydown area to the deployment site.

Working from the right bank:
A Tirfor should be attached to the main mooring point with tensioning cable fully extended. A towing bridle should be attached to the Tirfor cable. With the first section of boom connected to the towing bridle the remaining sections can be assembled and inflated on the bankside. A towing bridle and warp must be attached to the last section of boom.

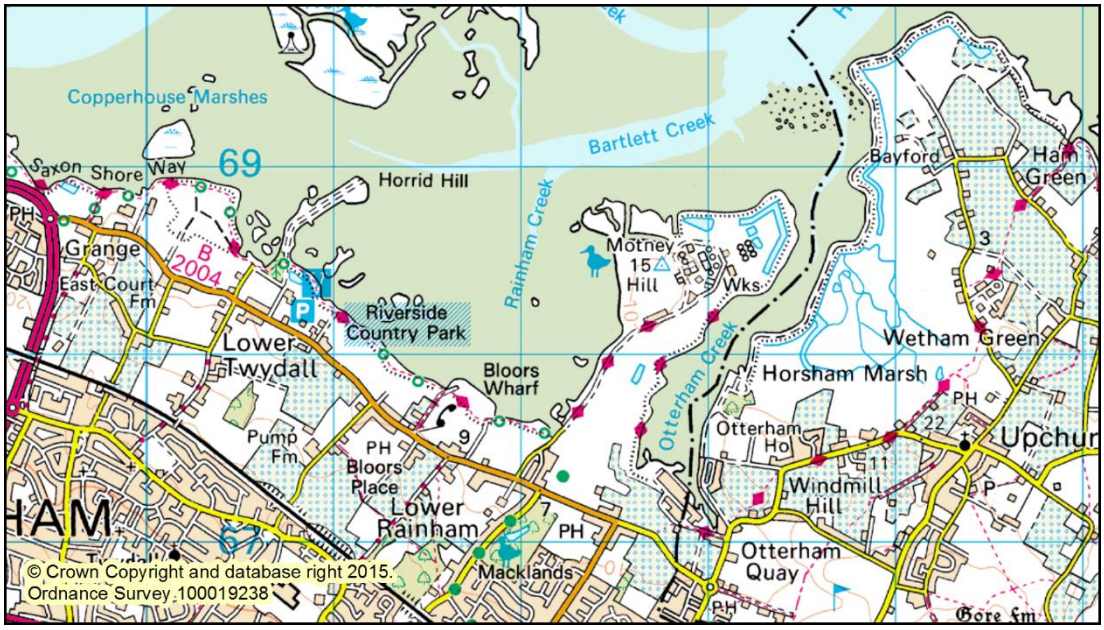
Working from the left bank:
A Tirfor must be attached to the main mooring point with tensioning cable fully extended ready to receive the boom, when deployed from the right bank. At high water slack the workboat can tow the boom across to the left bank, where the boom can be connected to the Tirfor cable. Operating the Tirfor`s from both right and left back will tension the boom. The workboats can now lay Intermediate anchors at 50m intervals up and downstream of the boom. All anchors must be fitted with trip lines. When all anchor lines have been connected and it has been confirmed that the boom is in the correct position water ballast chambers can be filled. The workboats will be required to carry out this operation.
The workboat must stand by to trim the boom when it is first influenced by the incoming tide

OIL RECOVERY AND OIL STORAGE:
All types of oil recovery equipment can access the area immediately adjacent to the boom cusps where oil will collect. A Tractor Vac would be the preferred recovery option.

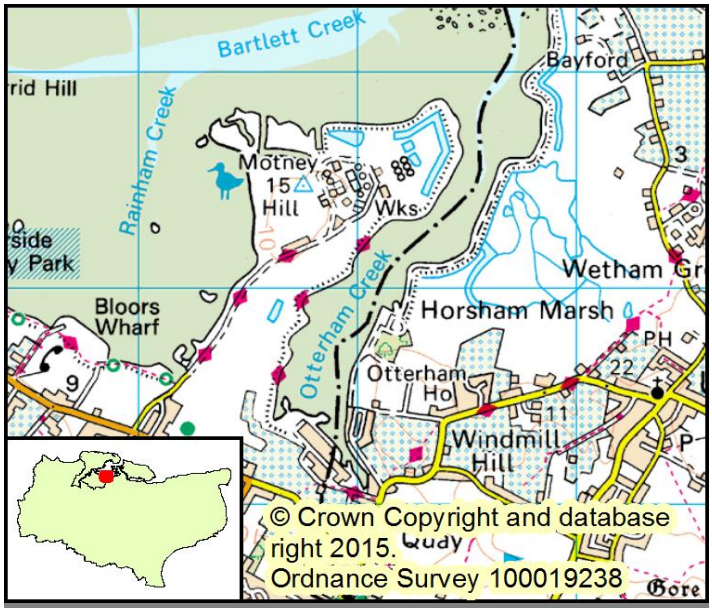
A grassed area immediately adjacent to the oil collection point could be used to erect temporary storage tanks at this site.

BOOM RECOVERY:
The boom should be recovered to the left bank. The most suitable time for recovery of the boom would be high water slack. All intermediate mooring lines must be released, and all water ballast chamber valves opened. The securing line to the main right bank mooring should be released and the Boom towed back to the left Bank where it can be recovered, section by section and returned to the lay down area. All anchor and ground anchor plates should now be recovered. A careful visual inspection of the site should be carried out to ensure all equipment has been recovered.

Otterham Creek Site Plan



Otterham Creek



BEACHMASTER CHECKLIST

1) Check that the site identified by the Integrated Emergency Management structure as the site requiring booming is the correct site (the check will confirm that oil has or is likely to come ashore, and that a booming plan exists for this site).
2) Ensure access to site is available.
3) Establish Rendezvous Point at the Motney Hill Treatment Works.
4) Instruct Foremen and boat crew in the deployment of the boom(s).
5) Identify oil spill clean-up areas and appoint foremen to arrange clean up.
6) Arrange for temporary beachhead storage facilities, i.e., fast tanks.
7) Arrange for removal of oil from site to approved (licensed) disposal site(s).
8) As advised by the Integrated Emergency Management structure arrange for boom(s) and associated equipment to be removed from the creek and surrounding area and instruct foremen to arrange.
9) Advise Integrated Emergency Management structure when equipment has been recovered and seek advice as to any future requirements.
10) Ensure all vehicles and manpower have departed the site and the RvP.

Maritime and Coastguard Agency
Environment Agency

FAVERSHAM CREEK PROTECTION PLAN

Note: This is the operational plan dealing only with physical boom deployment at the site referred to here. The Integrated Emergency Management structure will determine priorities for booming as part of the overall shoreline protection strategy. Validation work carried out by Maritime and Coastguard Agency & Local Authorities in partnership.

DATE OF VALIDATION:	20th March 2002	
LOCATION:	OS Sheet 178 Grid Ref: TR 007 640 (1:50 000)	
WEATHER:	Faversham Creek is exposed to northerly winds	
FLOW RATES:	No formal tidal data is available for Faversham Creek. The information supplied is best estimates from information gathered on the day.	
SPRING TIDES:	Flood 1.8 Knots	Ebb 2.2 knots
NEAP TIDES:	Flood 1 knot	Ebb 1.6 knots

DEFINITIONS:
The following terminology and definitions (used by the Maritime and Coastguard Agency to define 'Riverbanks') should be used by all organisations in order to avoid any confusion, and to ensure correct deployment of manpower and resources.

The definition is as follows: "With your back to the ebb flow of the river all locations in front of you will be defined as "downstream" and all locations behind you will be defined as "upstream". To your right hand side will be the right bank and to your left will be the left bank".

SITE ACCESS AND BOOM LOCATIONS:
Approaching Faversham from the west via the A2 trunk Rd turn left onto the B2045 and continue to-wards the village of Oare. From the village an unclassified Road leads to 'All Marshes Nature Reserve'. A footpath then leads directly to the deployment site.

LOCAL LIAISON:
Contact for access:

Kent County Council
Environment Agency
Swale Borough Council

EQUIPMENT LIST:

Workboat	x1
Safety Boat	x1
Measuring Line	x1
Shore Sealing Boom	x560m
Towing Bridles	x4
Water Pump and Hoses	x2
Air Blowers and Connectors	x2
Anchors 1000kg	x1
Anchors 15kg	x18
Mooring Chains x 6m	x20
Mooring Buoys Large	x2
Mooring Buoys Small	x18
Ground Anchor Plates	x6
Shackles minimum 2 each mooring point.	
Warps 25m x 18mm	x20
Warps 10mm Anchor Trip Lines	x18
Tirfor (5 tonne capacity)	x2
Sledge Hammer	x4
Shovels	x2
VHF Radios	x4
CAT Scanner	

RESOURCES:

The response to an oil pollution incident at Faversham Creek will be co-ordinated by a Beach Master designated by the Integrated Emergency Management structure. The response may include the deployment of oil booms to prevent/minimise the spread of oil inshore.

Staff identified by the Beach Master will deploy the booms. A supervisor with training in, and a working knowledge of boom deployment will supervise these staff. This group of staff will be referred to as the 'Faversham Team'.

The Faversham Team will comprise the following staff: -

Shore Team		**Boat Team**	
Beach Master	x1	Coxswain	x2
Foreman	x2	Boat Handlers	x2
Boom Handlers	x16		

COMMUNICATIONS:

Marine band channel 10. Mobile phone reception good.

HEALTH AND SAFETY:

All staff to be aware of health and safety responsibilities. Refer to MCA STOp note 1/98. Before beach plates are driven into foreshore, site should be checked for underground services.

Areas of soft mud will be present on the lower shore. Extreme caution should be taken when personnel are working on the lower shore. All personnel working from boats or in the low water channel must wear life jackets. Due to the soft mud the boom at this site should only be deployed at high water.

PHYSICAL DESCRIPTION OF THE SITE:
As with most of the Medway Estuary the inter-tidal area within Faversham Creek is mainly very soft mud, backed by extensive areas of salt marsh and reed beds. Sea Defence walls protect farm and marshland from flooding. A footpath constructed on the sea wall, leads from the car park directly to the entrance to the creek. The creek is quite sheltered but would be exposed to strong winds from the North East.

The boom deployment site has shingle banks with a thin layer of soft mud over hard packed sand in the inter-tidal area. The channel is approximately 250m across drying to a low water channel of approximately 30m across.

The environmental designation for this area is: SSSI

BOOM DEPLOYMENT:
- Permanent bank side moorings are not available at this site.
- Road access to the boom site is restricted. HGV vehicles should park at KCC Preston depot; 4WD vehicle and trailer should transfer the equipment to site.
- When measuring boom lengths allowance should be made to include a Tirfor/Winch in the boom line.
- When measuring boom lengths allowance should be made to include a Tirfor/Winch in the boom line.
- Easiest deployment of the booms would be at high water slack allowing sufficient time to transport all necessary equipment from the lay down area to the right and left banks.
- This boom deployment requires a marine team and a bank side team.
- The marine team will deploy intermediate anchors and provide towage for the boom.
- The bank side team will prepare boom and man Tirfor points.
- The boom deployed will be of a CHEVRON TYPE from both banks to mid river with oil collection points on each side.
- The nature reserve car park would be the most suitable area to be used as a vehicle park and equipment lay down area, but permission should be sought from the landowner.

The Marine Operation:
- A Tug or Workboat will lay 1 X 1000kg anchor with 5m of heavy chain or x6 50kg CQR anchors at the mid river point and attach 2 large mooring buoys with large link line to the end of the anchor ropes.
- The main towboat will take string line measurements for both booms.
- Once assembled, the towboats will tow the booms to the mid river mooring point using towing bridles.
- These will be attached to the pre-laid mooring.
- 2 Support Craft stand by on the upstream side of the boom and 1 on the downstream side.
- Towing craft attach and lay intermediate moorings to take the strain on the flood.
- Support craft to fill water chambers on the shore-sealing boom.
- Once the boom is secure the towboat will tension the boom to the intermediate moorings.

Bank Side Operation:
- Deployment teams for right and left banks to assemble at the nature reserve car park (OS Grid Ref: TR 004 647).
- Following an operational briefing the right bank team should be mobilised to Nagden Marsh deployment site (TR 007 6470).

- At a point highlighted in the attached site plan and identified by the Beach Master. Ground anchor plates should be driven into the foreshore to establish the right and left bank mooring points.
- Working from the left bank, a measuring line should be secured to the anchor plate, then drawn out across the foreshore and passed to the work boat.
- When ready the workboat should tow the line out from the foreshore, downstream and connect to the main channel mooring point.
- With the line tensioned the boom length can be confirmed.
- The measuring line should now be recovered.
- A Tirfor should be attached to the main left bank mooring point with the tensioning cable fully extended.
- With a towing bridle attached to the Tirfor cable, the sections of boom can be connected and inflated on the fore shore.
- A towing bridle and heavy mooring line should be attached to the final section of boom.
- At slack water the workboat should pick up the towline and tow the boom from the foreshore and connect to the main channel mooring.
- The Tirfor on the left bank should now be operated to remove slack from the boom length.
- Intermediate anchors should be laid at approximately 50m intervals up and down stream of the boom. The workboat will be needed to support this operation.
- When all the anchors' lines have been connected and it is confirmed that the boom is in the correct position the water ballast chambers can be filled.
- The workboat should now stand-by to adjust the mooring lines when the boom is first influenced by the incoming tide.
- The boom deployment procedure will be the same for the left bank.

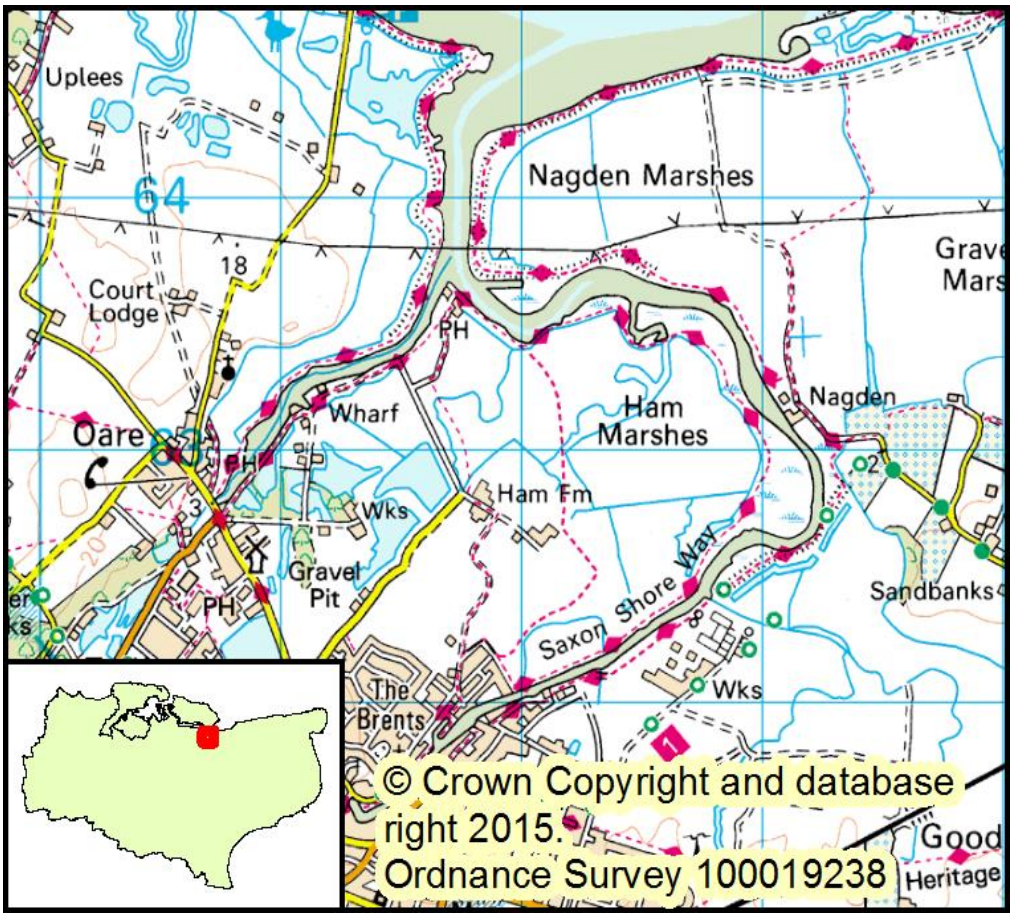
OIL RECOVERY AND OIL STORAGE:

Access to both right and left bank oil collection points is restricted. Oil recover equipment will be limited to light weight disc or vacuum type skimmers. There is a grassed area adjacent to the oil recovery point that would be suitable for fast tank storage. A 4WD Tractor drawing a Vacuum tank should be able to access the site to evacuate the Fast Tanks.

BOOM RECOVERY:

- The most suitable time for boom recovery would be at high slack.
- The valves should be opened to release the water from all sections of shore sealing boom.
- All intermediate mooring lines should be released from the boom.
- The work boat should then release the boom from the main channel mooring point and tow the boom back to the bank side where it can be recovered section by section and returned to the lay-down area.
- All anchors and ground anchor plates should now be recovered.
- A careful visual inspection of the site should be carried out to ensure all equipment has been recovered.

Faversham Creek Location Map (OS Grid Ref: 007 640)



Faversham Creek Boom Deployment

BEACHMASTER CHECKLIST

1) Check that the site identified by the Integrated Emergency Management structure as the site requiring booming is the correct site (the check will confirm that oil has or is likely to come ashore and that a booming plan exists for this site).

2) Ensure access to site is available, telephone Kent County Council.

3) Establish Rendezvous Point at the nature reserve car park.

4) Instruct foremen and boat crew in the deployment of the boom(s).

5) Identify oil spill clean-up areas and appoint foremen to arrange clean up.

6) Arrange for temporary beachhead storage facilities.

7) Arrange for removal of oil from site to approved (licensed) disposal site(s).

8) As advised by the Integrated Emergency Management set-up arrange for boom(s) and associated equipment to be removed from the creek and surrounding area.

9) Advise Integrated Emergency Management structure when equipment has been recovered and seek advice as to any future requirements.

10) Ensure all vehicles and manpower have departed the site and the RvP and advise Kent County Council.

Annex S

Guidance Note for Dealing with Stranded Whales, Dolphins and other large Marine Wildlife on Kent Coast

This guidance note has been produced to assist coastal Local Authorities and their partners to respond to reports of live and/or dead strandings of cetaceans (whales and dolphins) and other large marine wildlife. On Receiving Alert of Stranding: Please seek as much detailed information on the nature of the stranding as possible from caller.

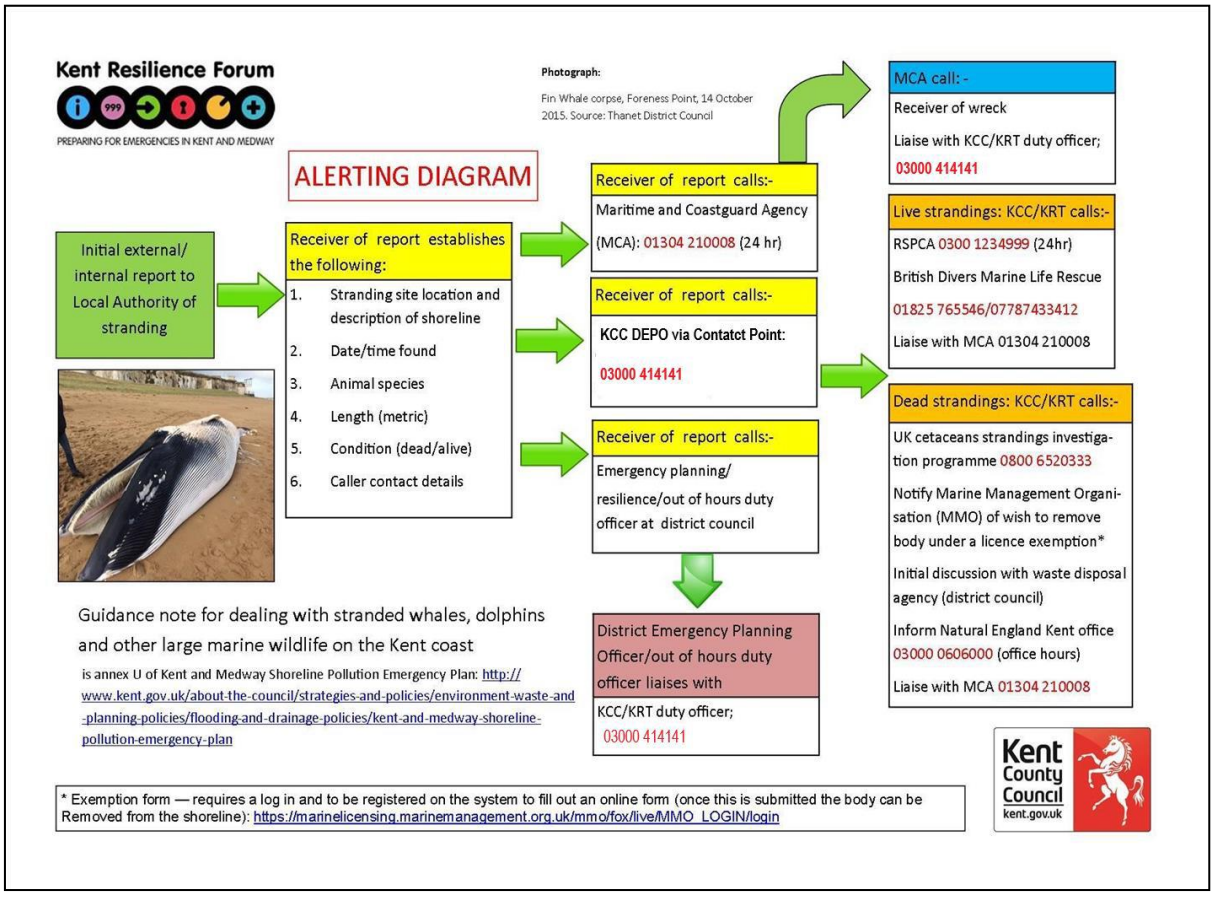
The following details are especially useful:

1. Stranding site location and description of shoreline
2. Date and time found
3. Animal species (digital images can assist identification)
4. Overall length of animal
5. Condition of animal (i.e., live or dead)
6. Caller contact details

Please look at alerting diagram below for all phone numbers. This information must then be immediately communicated to the Maritime and Coastguard Agency (MCA) using their 24 hour tel. no. (MCA will notify the Receiver of Wreck). Contact should also be made with the Kent County Council (KCC) & Kent Resilience Team (KRT) Duty Emergency Planning Officer and district emergency planning lead/out of hours duty officer who will contact relevant response agencies (including RSPCA, British Divers Marine Life Rescue, UK Cetacean Strandings Investigation Programme and the waste disposal authority). Please note that no attempt should be made to move or capture stranded animals and that the public should remain at a safe distance, to reduce potential for harm to both people and the animal.

Alerting Diagram: Please use following alerting diagram for all phone numbers
Disposal:
Following scientific investigation, the local authority may be required to move or dispose of a dead animal(s). A common-sense risk analysis will need to be made informed by the size, condition and location of the stranding i.e., animals within inaccessible or remote locations, particularly smaller species and those in an advanced state of decomposition, may simply be left for natural processes to take their course, however, animals in highly populated areas, on amenity beaches or with the potential to cause a hazard to shipping if refloated may require removal and disposal by the most practical and environmentally sustainable means available. Removal requires a licence exemption from the Marine Management Organisation (MMO). Removal the sea or burning out to sea requires a marine licence and is not covered by this exemption, and burial on the beach below high water mark also requires a marine licence.

Beach-burial on amenity beaches and burning (both approaches historically utilised in Kent) are not recommended, because of the potential for pathogen spread and residue. Co-operation between the waste collection authority (District Council), waste disposal authority (Kent County Council, via KCC/KRT Duty Officer and Natural England is recommended.



Risk Assessment:

Responders dealing with stranded dead cetaceans and other large marine wildlife should ensure that a dynamic risk assessment is completed and that correct PPE is used during close contact, as carcasses may be unstable or harbour pathogens potentially harmful to human and other animal health.

Legal background:

The legal context relating to cetacean and other large marine wildlife stranding's is complex; the following information seeks to provide some clarification:

1. The Wildlife and Countryside Act 1981 and Conservation of Habitats and Species Regulations 2010 protects all cetaceans (whales and dolphins), marine turtles and the basking shark. (Seals are only protected by this legislation from certain methods of taking and killing and are not protected to the same level as cetaceans and turtles and basking sharks. Seals are protected from taking under the Conservation of Seals Act 1970 and removal of dead seals does not require a wildlife licence under this Act.) In the event of a stranding, the legal situation should be ascertained from Natural England (this especially applies to disposal). The Marine Management Organisation (MMO) is the wildlife enforcement authority for marine species and wildlife licensing authority below low water mark.

2. Statute Prerogative Regis, 17 Edward II (AD 1324) states that although the Crown has sovereign dominion over the sea around the British Isles, it has no general property in the fish and marine mammals in it except for cetaceans and sturgeon. These are 'Royal Fish' and belong to the Crown. The chief requirement of the Royal Prerogative nowadays is that stranded 'Royal Fish' are reported to the Receiver of Wreck who will then pass the information to the Natural History Museum, London and other relevant bodies. The Receiver of Wreck can be contacted via the local coastguard.

3. In consultation with the Receiver of Wreck, local authorities may deal with the collection and disposal of carcasses of 'Royal Fish'.

4. Unfortunately, when they strand alive, cetaceans can be vulnerable to deliberate harm from human activity. Under the Wildlife and Countryside Act 1981 and the Conservation of Habitats and Species Regulations 2010 any person who intentionally disturbs, kills, injures or takes any cetacean shall be guilty of an offence. Kent Police and the MMO are the investigating authorities in this regard. As both are enforcement authorities, the decision is generally made locally as to who will lead on a marine species case.

5. Even when cetaceans are dead, possession of any part of the animal is strictly illegal under the Wildlife and Countryside Act and Habitats Regulations, except under Natural England licence.

6. Kent Police, MCA, local authorities and RSPCA staff will work together to ensure that a live animal is not harassed, with recourse to the Protection of Animals Act 1911 which protects captive animals from acts of commission and omission which cause suffering, stranded cetaceans can be considered "captive". The MMO is also a management and enforcing authority but will be unlikely to provide on the scene resources in these incidents. They can however assist with coverage in social media and on the internet to try to prevent harassment of live animals if this approach is seen as useful.

Useful link:

Marine Management Organisation licence exemption form:
https://marinelicensing.marinemanagement.org.uk/mmo/fox/live/MMO_LOGIN/login

Annex T

MINERAL AND VEGETABLE OIL POLLUTION – GUIDANCE FOR SHORELINE RESPONSE (published in 2016)

Scientific, Technical and Operational Advice Note - STOp 1/18

Note: This document should be read in conjunction with:

- Emergency Response and Recovery guidance - *Non statutory guidance accompanying the Civil Contingencies Act 2004*
- STOp 2/16 - The Environment Group and Maritime pollution response in the UK
- The National Contingency Plan (NCP) - A strategic overview for responses to marine pollution from shipping and offshore installations

All extant Maritime and Coastguard Agency (MCA) STOp notices may be found on the MCA web site: https://www.gov.uk/government/publications/scientific-technical-and-operational-advice-notes-stop-notes

Further information is also available in the MCA's Oil pollution, contingency planning and response training materials at https://www.gov.uk/government/publications/oil-pollution-contingency-planningand-response-training-materials

Introduction

In recent years there has been an increase in reports of pollution described as white or yellow lumpy/crumbly material on the shoreline with a waxy consistency, ranging in size from football (sometimes larger) down to pea sized.

Given the increased frequency of reported incidents of these substances on UK beaches and a number of recent pollution incidents involving large quantities of such substances, this STOp note aims to capture some of the lessons identified.

These incidents have been reported on other European shorelines, and the source of these substances is thought to be the result of operational tank washings discharged to sea. With this type of pollution on the coast, however, it is usually impossible to identify the specific source.

The majority of these substances have been identified as a form of vegetable oils (e.g., Palm oil, Coconut oil etc. with a fatty acid composition) or mineral oils (hydrocarbons) specifically paraffin oils. These substances are part of a group of chemicals described as MARPOL Annex II high-viscosity, solidifying and persistent floating products.

The carriage of chemicals in bulk is covered by regulations in SOLAS Chapter VII - Carriage of dangerous goods and MARPOL Annex II - Regulations for the Control of Pollution by Noxious Liquid Substances in Bulk. Many high-viscosity, solidifying and persistent floaters have melting points above 0°C that require heating during the voyage and during discharge. With all of these products, the main physical properties at issue are the viscosity and the melting point of the product and its characteristics when discharged to the marine environment as tank washings. They have very low solubility in water and float to the water's surface once discharged, and depending on the water and air temperature, can solidify and form clumps. If washed ashore, beaches may be closed to the public, and cleaning up this material can be expensive.

MARPOL Annex II regulates what can/cannot be discharged as a result of ship’s operational practices and prescribes the conditions under which a discharge into the sea can be permitted. Under MARPOL Annex II, substances are divided into categories (X, Y, Z) according to the level of threat they pose to the marine environment. It seems likely however that both legal and illegal discharges are causing shoreline pollution which is harmful to the environment and requires a range of specific approaches in terms of contingency planning, response and clean up.

This STOp notice aims to pull together best practice for local authorities, ports and private beach owners in dealing with this type of pollution and has been drawn up by the Kent Resilience Forum Marine and Aquatic Pollution Sub Group in conjunction with the MCA, following some incidents along the Channel coastline from Hampshire to Kent during early 2016. Additional input has been provided by Cornwall Fire, Rescue and Community Safety Service. This notice mainly deals with the shoreline response, but the approaches outlined will also assist the MCA in influencing policy and enforcement on this type of pollution nationally and internationally.



Images from MCA: examples of solidified mineral and vegetable oil on the shoreline.



Images from MCA: examples of solidified mineral and vegetable oil on the shoreline.

1. Alerting and Response Structure

The local authority or the public may be the first to know of the pollution when it is close to or on the shoreline, alternatively it may be identified at sea by vessels or airborne surveillance. Ideally, the entity/person discovering the pollution should contact Her Majesty's Coastguard and provide as much detail as possible. While not an exhaustive list, the following elements are key:

- Location (both geographically and relatively at the scene)
- Nature of the pollutant (size, shape, colour, appearance)
- Extent (including if there is more in the water that may beach)

Should a local authority or environmental organisation, receiving a report of marine pollution of any type or quantity, or a threat of marine pollution, they should send that information immediately to the nearest Coastguard Operations Centre (CGOC). Organisations sending information to the CGOC should make every practicable effort to provide as much information as possible, the SCAT survey form may be used, and instructions can be found online:
https://www.gov.uk/government/publications/shoreline-clean-up-assessment-techniques-scat

Ideally, the local authority should undertake an immediate SCAT (Shoreline Clean-up Assessment Technique) survey to determine the scale and extent of the pollution.

Note: The only initial note of caution is to make sure the material is not whelk egg cases or any other naturally occurring matter that can resemble some types of this kind of pollution. If there is doubt and is thought that the discovery is more likely to be a pollution, further investigation should be carried out.

On receipt of reports, the MCA will issue a Pollution Report (POLREP). This will contain any available information on the pollution, the sea conditions and prevailing weather. It will also try to determine the scale of the incident; an assessment of the initial response and follow-up actions being considered.

This is the first phase of the response process and is key to determining the nature and scale of the incident and the subsequent response needed. It will assist in the identifying the resources needed, any specialist requirements and public safety issues, should any exist.

As with any response effort clear communication across all response agencies is essential. To ensure such a response, this STOp notice recommends that one single Duty Emergency Planning Officer is identified as the local authority point of contact for the MCA to avoid confused messages.

The Duty Emergency Planning Officer should in turn deal with the various local individuals and organisations that need to be involved in the response.

2. Categorising Response

Local Shoreline Pollution Emergency Plans and the National Contingency Plan (NCP) should be referred to help determine categorisation; Tier 1 or Tier 2 has been the only response to this type of pollution so far, where largely local authority resources have been deployed.

If more than one authority is affected, the incident should be classified as Tier 2 in order that multiagency coordination can be initiated, and the right level of resources and local authority involvement can be determined.

If a Tier 3 response is determined, structures within the NCP such as the Strategic and Tactical Coordination Groups (or their equivalent response organisation within the Devolved Administrations) should be considered/established, with clear lines of communication established between each of the response groups.

3. Media Considerations

It is very possible that commercial media will learn of a pollution incident first, particularly in the era of social media. Media considerations have the potential to feature highly, even for relatively minor pollution events on the shoreline, thus it is important that the response authorities includes a Media Lead. Experience has shown that authorities need to formulate a clear message early and that a single source is needed from the outset to agree and co-ordinate a strong and consistent media message which can be adapted as the response develops. This approach will be vital to respond to and counteract any misinformation being circulated on social media. Ideally just one authority should lead the media response with others asked to contribute to a single message.

A message will need to be agreed even before the material is identified, in order that the media and public know that the situation is in hand, but also to issue advice on people accessing beaches and on dog walking and possible toxicity.

Consistent language should be used to describe the pollution and there should be no assumptions or speculation as to what it might be until tests have established the facts. For example, it might initially be described as a white lumpy material, but if it is identified as a mineral oil, it could be that terminology such as “waxy mineral oil” would provide a more refined definition. Whatever terminology is chosen, the key point is to stick to it throughout all communications relating to the incident.

As the incident response develops, the Media Lead can agree and issue updates to the media and coordinate any requests for interviews.

4. Beach warning signs

It is important to get information out quickly, consistent with the media approach. If the substance is unidentified, precautionary messages and warnings need to be clearly promulgated. Again assumptions are to be avoided but precautionary warning such as, "…an unknown white lumpy material…" (tailored to the pollution type) are recommended until identity is known, and guidelines such as, "…walking of pets… " or, "pet animals/dogs should kept on a lead if in the vicinity of pollution" (if they are allowed on the shoreline), should issue both widely and around the scene of the pollution. Though not universal so, some types of vegetable oil such as palm oil may be toxic to both wild and domestic animals.

5. Identification (Chemical Analysis)

Sampling and identification of the pollutant should be a priority from the outset but, whilst awaiting identification, the authority should not delay either the media work or the clean-up operation. Certain approved bodies can undertake chemical analysis and each local authority should have provision for this in their Local Shoreline Pollution Emergency Plan.

Glass jars and wooden spatulas need to be used for collection – contact with metals and plastics should be avoided as it can taint the sample. Until the sample has been identified, it should be considered hazardous and appropriate PPE should be used (e.g., gloves as a minimum). The sample needs to be transported to the analysis centre as quickly as possible. The analysis/testing process may take over two days, so any delays in collection and transportation will only add to any delay in identification.

It is important that the material is identified as quickly as possible, in order that the correct response and disposal method(s) can be used. Also, identification will provide the MCA with vital information to support their investigations as to the potential source of the pollution and (in rare cases) start the process of enforcement and cost recovery.

CEFAS (Centre for Environment, Fisheries and Aquaculture Science), working with MCA, MMO and Defra, are collating a physical catalogue of these samples to aid in the development of a simple identification procedure using basic visual and physico-chemical information. They are also developing a database of identified waxy substances using this process. Therefore, if possible, samples should be sent to their Lowestoft Laboratory for storage within this archive along with some basic information about the substance (see Table 1). Further information about this process and how to access substance identification expertise can be obtained by emailing: emergency.team@cefas.co.uk

Note: Where local authorities may wish to engage CEFAS services in terms of identification and analysis, it is recommended that contact is made in advance of any incident to ensure preparedness and agreed procedures.

Sample Details	Description including colour, texture, smell and approximate size/amount
Date Collected	
Collected by	Name/position and organisation

Location (description)	e.g., Beach at Sizewell
Location	Lat/long or grid reference
Quantity Collected (g)	Estimate (will be weighed in laboratory)

Table 1: Sample details requested for database archive

6. Waste Disposal

Waxy mineral and vegetable oil require different clean-up, storage and disposal responses. Mineral oil will dissolve plastic, so woven bags are recommended for collection of both types of pollution (if unidentified), but plastic bags can be used if the substance is known to be vegetable oil.

Mineral oil is classified as a hazardous waste and disposal is significantly more expensive, so temporary storage in a well-ventilated location is essential in order that the unidentified material can be removed from the environment immediately before it starts to break down and until disposal methods are determined. This precautionary approach is recommended, to enable more rapid clean-up.

Depending on the potentially differing regulations and safety procedures pertaining to of individual contractors, authorities may have to assume that an unidentified pollutant is hazardous waste from the outset (ahead of chemical analysis); this in order that contractors can commence clean-up immediately and meet their health and safety guidelines. However, having temporary storage alongside this worst case measure, will avoid unnecessary expenditure if the substance is later identified as non-hazardous.

7. Equipment

Collection for testing:

- Glass jars
- Wooden spatulas

Well ventilated temporary storage areas

Collection ahead of testing using precautionary principles (or if known to be mineral oil):

- Woven bags
- Work gloves
- Steel toe-capped Boots

8. Post Pollution Monitoring

When the majority of material is removed, the shoreline should continue to be monitored and SCAT surveys repeated. In the short term this is to combat existing pollution recirculates and ending up on the shore again, in the long term it will ensure that any material that has melted into the substrate (particularly for shingle) is identified quickly if it should resurface. Such monitoring may be needed for months following the initial pollution incident. Longer term monitoring should be undertaken using the PREMIAM guidelines (visit www.cefas.co.uk/premiam for further information).

9. Shoreline Types and Clean-up Methods

Removal from shingle and sand may be relatively easy, at least in the early stages of the response before the material crumbles, liquefies or is distributed through the substrate through churning by wave action. However, attempting to remove material from mudflats may be counterproductive and removing from saltmarsh during bird breeding season may cause excessive disturbance. An assessment of the Net Environmental Benefit (NEBA) of the shoreline response should be made before clean-up begins.

Considerations for different types of shoreline should be written into Local Shoreline Pollution Emergency Plans and advice taken from Standing Environment Group.

10. Record Keeping and Polluter Pays

Local authorities should record all time and resources spent on the incident from Day 1, this should include the shoreline response and all off-site office based administration and communications. This is important as, should the MCA be able to identify the polluter, cost recovery action may be triggered and, if a valid prosecution is upheld, reimburse of local authority costs can be pursued.

Cost recovery is a complex process and, as well as the costs being recorded, there will be the need to show that authorised response plans had been followed and that resources matched to the needs of the response. Unnecessary effort or wasteful procedures will impact against any claim and the ability to recoup legitimate costs.

Even if the polluter is not identified, this record will be invaluable in building up a national picture of the scale of this pollution and the cost to local authorities and other bodies.

11. MCA Work

It is requested that a record of the chemical analysis, the extent of the pollution, the amount disposed of, and a timeline of events be provided to the MCA Counter Pollution & Salvage team. The MCA are building a picture of these types of incidents in order to establish a national evidence base. This will be used to support the ongoing work on the impact of these pollutants, and influence the Pollution, Preparedness and Response Group (PPR) on the Evaluation of Safety and Pollution Hazards of Chemicals within IMO. This working group is examining the possibility of amendments to MARPOL Annex II related to the discharge of cargo residues and tank washings of high viscosity, solidifying and persistent floating products. Please forward reports to HQ_counterpollution@mcga.gov.uk

Annex U

RESPONDING TO WAXY MINERAL/VEGETABLE OIL POLLUTION INCIDENTS ON THE KENT COAST

Introduction

This information provides advice for local authorities, ports and other agencies when responding to pollution incidents involving white/yellow waxy materials washed onto the Kent shoreline. This is generally solidified tank washings of either mineral or vegetable origin and can involve material from pea to football size (or bigger) sometimes over a wide area. The following sets out actions to reduce risk to responders, the public and wildlife, as well as contain to costs and avoid duplication of effort.
In the event of an incident please also follow the national advice in the Scientific, Technical and Operational Advice Note - STOp 1/18:
https://www.gov.uk/government/publications/scientific-technical-and-operational-advice-notes-stop-notes

Responsibility for clean-up

For minor or contained incidents, which are categorised as Tier 1, it will be the affected district or borough council who is responsible for any shoreline pollution clean- up, though there are stretches of privately owned/port owned shoreline in Kent where the landowner assumes lead responsibility. However, if the pollution incident is considered significant or affects more than one local authority area it may be declared Tier 2 and KCC resources will be deployed to support the clean-up. Incidents so far have been in the winter, therefore involving solid material, an incident in summer in involving melting materials may present a more difficult situation. Very serious and widespread shoreline pollution incident may be categorised as Tier 3, enabling the introduction of national clean-up assets and command and control.

Actions in the initial hours

It is imperative that anyone discovering or made aware of a shoreline pollution incident should alert the affected district or borough council, port or owner by telephone*, but it they are uncontactable for any reason, the 24/7 KCC Duty Emergency Planning Officer (DEPO) should be alerted.
* All numbers can be found on in Annex A of the KRF shoreline pollution plan on RD:
https://collaborate.resilience.gov.uk/RDService/home/121241/KRF-Plans

The DEPO will record the basic “location, type and scale of the pollution” information and persist in contacting the relevant authority to ensure appropriate action is taken. A brief summary of this correspondence will need to be shared immediately “for info” via email with:

- MCA to inform POLREP and consider wider marine pollution reports nmoccontroller@hmcg.gov.uk.
- County Oil Pollution Officer (COPO) to consider Tier notation chris.drake@kent.gov.uk in absence of the COPO this decision will be made by the DEPO’s (referring to the county Shoreline Plan).
- KCC waste in order that considerations can be made for disposal WasteLiaison@kent.gov.uk.
- KSS in order that the sample analysis is prioritised kss@kent.gov.uk.
- NE to advise on environmental sensitivities if necessary marine.incidents@naturalengland.org.uk.
- EA to avoid any duplication of effort Incident_Communication_Service@environment-agency.gov.uk.

- The individuals within the district/borough/port authority now handling the response.

The ports in Kent will also need to know of any pollution incidents within their areas of jurisdiction for their reporting to MCA and in case the pollution is either on or near the areas of foreshore which they are directly responsible for. The relevant ports are:

- Port of London Authority resilience@pla.co.uk (for a large area of the Thames estuary)
- Peel Ports (for the Medway estuary and approaches)
- Canterbury City Council (for Whitstable Harbour
- Thanet District Council (for Ramsgate Royal Harbour)
- Dover Harbour Board terminal.control@doverport.co.uk
- Folkestone Harbour

If a district or port is directly dealing with the pollution from the outset, they should also alert all the above via email, in addition to the DEPO at emergency.planning@kent.gov.uk within hours of becoming aware of the incident. This information sharing should help to keep agencies informed through an incident and avoid any duplication of effort.

Operational response (Tier 1 and 2)

A dynamic assessment must be undertaken on the affected shoreline:

- Pictures taken.
- A description of the location, type and scale of the pollution logged.
- Shoreline Clean-up Assessment Technique (SCAT) may also be used.

At this stage a decision will need to be made on beach closure and communications, in line with the information in the STOp notice. Samples of the material should also be taken using the guidance in the STOp notice, this should be passed on to Kent Scientific Services (KSS) at the nearest opportunity to be transferred for analysis to determine the pollutant.
For some types of shoreline at certain times of year, (such as mudflats) clear up may not be possible or deemed inappropriate as it will cause disturbance/harm to wildlife. Natural England can advise on this, but for the majority of shingle and sandy shorelines, removal will be the clear choice.
The prerogative is to remove the material from the environment on the same day as discovery. This should be carried out using the precautionary principle in accordance with guidance contained within the STOp notice on PPE and appropriate equipment. Well-contained and ventilated temporary storage will be essential because it will not usually be possible to achieve immediate (same day) test results to determine appropriate disposal methods. Instructions on media management, signage and other urgent matters listed within the STOp notice should also be actioned from day 1.
If an incident is assigned a tier 2 notation by the COPO, it is likely that the County Emergency Centre will be established for incident command and control.
In these circumstances the sample needs to reach KSS the same day and if the district is unable to get it to West Malling themselves, the KSS courier service should be considered, or the DEPO may be able to assist in transportation.

Collection of a sample (for method see section 6 of STOp 1/18)

Labelling is key – in order that KSS (Kent Scientific Services) have the right information, the label will need to contain the following:

1. Name and contact details for the officer (telephone number and email if possible)
2. A description of the sample: “waxy material collected from shoreline”
3. A location where the sample was taken
4. Time and date the sample was taken.

Glass jars and wooden spatulas need to be used for collection to avoid contamination and a sample of no more than 250g should be sufficient.

Kent Scientific Services, 8 Abbey Wood Road, Kings Hill, Kent ME19 4YT. Can be contacted via KCC DEPO
KSS will start the test the same day, but the chemical analysis process may take up to five days.

Removal of material from the shoreline
(see section 5 of STOp 1/18 on beach signage and section 7 on waste disposal)
To reduce risk to public health, pets and wildlife, the removal of the material should be carried out as soon at the material is found, NOT waiting for chemical analysis. This will ensure that any risks are minimised and that (in some cases) that public amenity may be preserved. Temporary storage of the material in a contained but well-ventilated location may be needed until the chemical ID is available and the correct waste disposal method is identified.

Waste disposal
Mineral oil is classified as a hazardous waste and requires a more expensive and rigorous waste disposal method than is the case for vegetable-based oils. Therefore, chemical testing is a vital part of the response. KCC Waste Services will then determine the correct disposal route.

Please note
This document is aimed at ensuring an effective and immediate operational response, it does not include actions on record keeping, reporting and environmental monitoring, but these are all essential elements which need to be followed up in the event of an incident.

Annex V

Zonal Plans

These plans are held as PDF’s both on Resilience Direct and at kent.gov.uk and are updated periodically by the district authorities, they are not an official part of this county plan but held in one place for ease of reference.