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*THE SEA
EMPRESS
DISASTER –
10 YEARS ON*

***AN OVERVIEW OF
SHIPPING ACTIVITIES IN
UK WATERS***

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Summary

As a result of the *Braer* oil spill in Shetland Isles, Lord Donaldson's report *Safer Ships, Cleaner Seas* was published in 1994. This report listed 103 recommendations to help protect the UK coastline from pollution caused by merchant shipping, whether accidental, operational or intentional. Following the grounding and associated oil spill of the *Sea Empress* off Milford Haven in 1996 a further analysis, *Review into Salvage Intervention and their Command and Control* was undertaken by Lord Donaldson. This report was published in 1999 and contained 26 recommendations pertaining to intervention, compensation, liability, command and control in a major maritime pollution incident. This report revisits the *Sea Empress* grounding, its consequences and lessons learned. The report goes on to identify new threats to the marine environment that exist as a result of the increase in export of crude oil from Russia, and the associated need for ship-to-ship transfer. Associated legislation is examined and the potential areas of concern discussed. Conclusions are drawn that reiterate the need for Marine Environmental High Risk Areas to be implemented in relevant sites, the need for emergency towing vessels in the Irish Sea, and the need for legislation concerning ship-to-ship transfers to be reassessed and passed through Parliament without further delay. There is also the need for a new risk assessment to be undertaken in view of the changing nature of ship-to-ship transfer around the UK, and which can be utilised for informed decision-making.

Introduction

It is 10 years since the grounding of the *Sea Empress* (15 February 1996), the last major oil spill in UK waters. At face value this is a good sign and it reflects the integrity of vessels and infrastructure, improvements in professionalism of seafarers, the regime established for international shipping by the IMO and others (99.9 per cent of oil is transported safely), and the measures now in place in the UK in terms of oil spill prevention, preparedness and response.

Given the high traffic density of shipping activities around the UK, the probability of another similar incident remains high. The *Prestige*, for example, transited through UK waters before foundering. It also ignores the 25-30 pollution reports that the Maritime and Coastguard Agency (MCA) deal with each month and which largely go unreported by the media. Historically major incidents have inspired government action. The grounding of the *Torrey Canyon* in 1967, when 120,000 tonnes of oil was spilled, highlighted how vulnerable the marine environment is. A direct result of this incident was the introduction of the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 (MARPOL).

Have we done enough to address all the possible contingencies since the *Sea Empress* or will it take another major catastrophe to address these inadequacies?

Part 1: The *Sea Empress* disaster

WHAT HAPPENED IN FEBRUARY 1996?

The *Sea Empress* was a Liberian-registered vessel of 147,272 dwt. She had a Russian crew of 27, and her master was competent in English. All the vessel's classification requirements and crew certification were valid for Det Norske Veritas (DNV) at time of incident¹. The vessel was loaded at Hound Point in Scotland, with 130,018 tonnes of Forties light crude oil². The incident occurred in south-west Wales, off St Anne's Head, Milford Haven, part of the UK's only coastal National Park (at the time). Ecologically this is a hugely rich area containing 35 Sites of Special Scientific Interest (SSSIs), a Marine Nature Reserve and two potential European Special Areas of Conservation. It is also an important area for fishing and tourism³.

The cause

The initial cause of the accident was identified as pilot error and included miscalculation of the effects of the tidal stream. Secondary causes included poor weather, tugs with insufficient "pulling" power, and lack of full understanding of local tides/tidal streams in area.

The initial grounding of the vessel on the 15 February, with loss of 2,500 tonnes of oil, was compounded by the subsequent loss of a further 69,300 tonnes during the salvage operation. The vessel was eventually re-floated and taken into port on 21 February. She was later towed to a Belfast shipyard for repair and returned to service under a different name.

The spill and its consequences

The spill of 72,000 tonnes of crude oil and 370 tonnes of heavy fuel oil impacted substantially over a 100km stretch of coastline. Estimates suggest that overall 200km of coastline were affected. A further 25,000 tonnes of waste were created by the clean-up operation. The *Sea Empress* ranks as one of the world's top 10 oil spills. Altogether it cost some £38 million, of which £28 million was spent on clean-up operations and the rest on compensation payments⁴. It could, however, have been much worse.

Factors that reduced the impact of the *Sea Empress* spill

- Time of year: the absence of tourists and the fact that many wildlife species were inactive or had migrated.
- Wind direction: as the wind was initially blowing from the north, 87 per cent of oil was pushed away from the coast.
- Type of oil spilled and evaporation effect: Forties light is generally easier to disperse and treat chemically than some other oils.
- Success of chemical dispersants: the success of the early and continuous application of dispersants was in part due to the specific properties of the type of oil involved. It is

¹ DNV is a member of the International Association of Classification Societies (IACS) and conforms to the same quality assurance standards as Lloyds Registry.

² MAIB (1997) *report of the Chief Inspector of Marine Accidents into the grounding and subsequent salvage of the tanker Sea Empress at Milford Haven between 15 and 21 February 1996*.

³ SEEEC (1998). *The environmental impacts of the Sea Empress oil spill*.

⁴ SEEEC (1998). *The environmental impacts of the Sea Empress oil spill*.

estimated that 24 per cent of the oil was dispersed in this manner and 28 per cent by natural dispersal, i.e. wind and wave.

- A relatively small volume reaching the coastline: the quantity was estimated at between five and seven per cent, i.e. a maximum of 5,300 tonnes. However, up to 16,000 tonnes of emulsified oil reached the coast⁵.

Environmental impacts

Despite these factors, the environmental impacts in the region were significant. The impacts included:

- Shoreline impacts: during the subsequent season a green flush of *Enteromorpha* – an increased growth of algae caused by the high mortality of grazing limpets and herbivorous gastropods. Populations of the cushion starfish (*Asterina phylactica*) suffered a high mortality, but had recovered by 1998. The rock-pool prawn (*Palaemon elegans*) was also affected and showed a slow recovery. Saltmarsh habitat was also impacted – however, damage was limited to sea purslane (*Halimione portulacoides*), which has subsequently recovered, and to saltmarsh rush.
- Birds and mammals: over 7,000 oiled birds. Unfortunately the survival rate of oiled birds after cleaning was low. The local common scoter (*Melanitta nigra*) population suffered a heavy loss, with a very slow recovery. In addition, the loss of feeding grounds had a significant knock-on effect on some migratory species, with the re-establishment of some species considered poor (present status unknown). Seal and cetacean populations appeared to be untouched⁶.

Aggressive clean-up techniques were used on areas with high amenity value. However, a more environmentally-aware approach was taken in other areas, utilising lessons learned from *Exxon Valdez* – i.e. that high pressure washing compounds the problem of oil in sensitive habitats and environments, and lengthens the recovery time.

Socio-economic impacts

- Commercial fisheries: the greatest impacts were observed in mollusc populations. However, there was also a temporary ban on finfish and crustaceans. Mollusc fisheries were eventually approved for harvest 19 months later, and the seaweed fishery 16 months later. There was no evidence of damage to spawning species, however, this was probably due to the timing of the incident.
- Human health: no known or verified long-term problems were recorded. Hydrocarbon analysis of local crops and animal products shortly after the spill showed they were fit for human consumption.
- Tourism: only a modest impact in this sector was observed, probably due both to the region being frequented by loyal repeat visitors and to the rapid response and successful clean-up operation.
- Other impacts to the local community: temporary limited access to coastal paths and temporary lack of cooling water for industry. Consequently, maritime oil transport and

⁵ SEEEC (1996) *Initial Report into The environmental impacts of the Sea Empress oil spill.*

⁶ Dyrinda, P. (1996). *An appraisal of the early impacts of the 'SeaEmpress' Oil Spill on Shore Ecology within South West Wales.* Final Report for The Wildlife Trusts and WWF-UK.

associated reliant industry were perceived in a negative light, to the extent that planned developments for a local power station were rejected.

LESSONS LEARNED – FINDINGS FROM THE DONALDSON REPORTS

As a result of the grounding of the *Sea Empress* a number of important issues were identified, and improvements to our existing knowledge on oil spills were recorded. These include:

Local issues

- A need for further/additional training for pilots working in these waters.
- A need for better tidal information as the tides in this area are unpredictable and strong, and insufficient or inaccurate data was available at the time of the incident.

National issues

- Insufficient availability of emergency towing vessels. The power of the four attending tugs impacted greatly on the salvage operation having a combined bollard pull of only 174 tonnes which proved to be ineffective.
- The use of bio-remediation measures whenever possible. The spill was used to monitor both the replication and enhancement of natural processes. This proved to be successful, but was partly due to the type of product spilt (a relatively light crude oil). Heavy fuel oil cannot be dealt with in this way.
- The resulting scientific evidence has taken forward our understanding of the effects of oil spills, and can be used to inform any future decision-making process.
- Further research has taken place to improve both response and assessment procedures should another major spill occur in UK waters, and changes have been made to the National Contingency Plan and Marine Pollution Control Units.
- A need for improvements into Salvage Intervention and Command and Control of major pollution incidents.

DIRECT ACTIONS RESULTING FROM THE LESSONS LEARNED

Subsequent actions resulting from the analysis and assessment of the *Sea Empress* oil spill include:

Local actions

- Changes to pilot training and other requirements specifically relating to Milford Haven Port Authority.
- Tidal surveys and the development of computer models to enhance knowledge and understanding of tides in the area.

National actions

- Changes to IMO legislation. All tankers are now required to have an emergency towing point (MSC.35 (63)).
- The presence and availability of four Emergency Towing Vessels (ETVs) around the UK (Fair Isles, Stornaway, Falmouth and Dover) throughout the year.

- The reassessment of National Contingency Plans and the roles of stakeholders in an emergency situation (see later section).
- The introduction of SOCRATES – Shoreline Oil Clean-up, Recovery and Treatment Evaluation.
- A government-organised workshop in 2002 to look at oil and chemical spill modelling.
- A number of scientific studies covering species recovery rates and the effects of hydrocarbons on the environment and marine and coastal wildlife.
- A greater knowledge of the reproductive biology of the cushion starfish.
- A range of studies looking at the monitoring of oil pollution, including the use of airborne imaging spectrometers; it is now possible to detect the thickness of the oil layer and to broadly classify the type of oil spilled.
- A greater knowledge and understanding of the use of dispersants in oil spills; for example, it is now known that some heavy fuel oil (bunkers) can be treated with dispersants provided the water temperature is above 15°C.

AN ANALYSIS OF A SELECTION OF LORD DONALDSON'S RECOMMENDATIONS

Issues pertinent to Milford Haven Port Authority

Pilot training

The investigations into the incident identified that there were deficiencies in the way in which pilots were trained. Pilots are now required to complete more hours under the tutelage of a senior pilot prior to working alone. They are also required to undertake training on simulators. Simulator training is also undertaken for personnel in charge of escort tugs. There is now a requirement for vessels over 65,000gt⁷ to have two pilots on board unless the vessel has an exemption certificate. Exemption certificates are only given to vessels that have dynamic positioning (DP) classification (DP makes the vessel highly manoeuvrable and enables the vessel to be kept on a tight course), and when the master and officers of the vessel have met strict standards and criteria laid down by the authorities including Milford Haven Port Authority (MHPA). Exemptions are examined annually and can be reversed at any time by MHPA. Furthermore, if a vessel has not used the port within a 12-month period the exemption becomes invalid⁸.

Tidal information

In June 1996, the Milford Haven area was surveyed, and the Marine Accident Investigation Branch (MAIB) subsequently commissioned a detailed study into the tidal streams of the area. The study was also used to compare published information available at the time with the computer generated model, and concluded that the tidal streams were strong and complex and that information available at the time of the incident was simplistic and inaccurate. Additional surveys have been carried out with the latest survey in 2004. All this information is now on the simulators used during pilot training⁹.

⁷ gt – gross tonnage: the internal volume of a ship.

⁸ Personnel Communication. Milford Haven Port Authority.

⁹ MAIB (1997) *report of the Chief Inspector of Marine Accidents into the grounding and subsequent salvage of the tanker Sea Empress at Milford Haven between 15 and 21 February 1996*.

Tugs and Emergency Towing Vessels (ETV)

Training for escort tugs has been enhanced at Milford Haven (see above). Three tugs operate in Milford Haven, each of which has a bollard pull of 66 tonnes giving a total bollard pull of 186 tonnes. While this is sufficient for everyday purposes, their combined bollard pull may still be inadequate to prevent another *Sea Empress* scenario from developing. In line with Lord Donaldson's recommendations in his 1994 report, there are now four ETVs deployed around the UK (Fair Isles, Stornaway, Falmouth and Dover). These ETVs are purpose built Anchor Handling Towing and Supply (AHTS) style vessels capable of individual sustained bollard pulls of over 130 tonnes. These AHTS vessels also have large deck spaces that can accommodate survivors, salvage equipment and counter pollution gear¹⁰.

Generic issues

Contingency planning

Following the *Sea Empress* incident, Lord Donaldson reviewed the UK's preparedness to deal with major oil pollution incidents. His review, published in 1999, made 26 recommendations (see Annex 1). One of the fundamental changes, which was subsequently carried out by the government as a result of the review, was to establish separate incident response units to deal with different functions – i.e. search and rescue, salvage, counter pollution at sea and counter pollution on shore. In addition, ultimate control of a salvage operation is now the responsibility of a Secretary of State's Representative (SOSREP), acting in the overriding public interest. A separate stand alone Environment Group supports all other control functions¹¹.

Additional regulations pertaining to responsibilities and actions, and resulting recommendations within Lord Donaldson's 1999 report, are contained within the Offshore Installations (Emergency Pollution Control) Regulations 2002 and Marine Safety Act 2003.

Marine Environmental High Risk Areas (MEHRAs)

The establishment of MEHRAs is one of five actions that remain outstanding following the Donaldson's Report of 1994 (Annex 2)¹². There are a number of environmentally-sensitive locations around the UK where their establishment could afford discrete areas a higher level of protection from the impacts associated with maritime activity. The identification of MEHRAs and the introduction of specific risk reduction measures allow a proactive and precautionary protective approach. Additionally, their creation not only raises awareness but also allows for Associated Protective Measures (APMs) such as Areas to Be Avoided and routing measures to be put into place, similar to those associated with the internationally recognised designation Particularly Sensitive Sea Areas (PSSA)¹³. MEHRAs have already been put to use in Australia to provide additional protection to the Great Barrier Reef PSSA, and have enabled specific geographic targeting of counter pollution equipment.

A series of vessel traffic surveys have been undertaken around the UK¹⁴ and, after a long process to identify MEHRAs, the government is shortly expected to announce MEHRA

¹⁰ Maritime Coastguard Agency, 2005. *The United Kingdoms Response to Salvage and Marine Pollution*. [www.mcga.gov.uk]

¹¹ Donaldson (1999). *Report into Salvage Intervention and their Command and Control*.

¹² Donaldson Report (1994). *Safer Ships Cleaner Seas. Report into the prevention of pollution from Merchant Shipping*.

¹³ PSSA – an area that needs special protection through action by the IMO because of recognised ecological or socio-economic or scientific reasons and which may be vulnerable to environmental damage by maritime activities.

¹⁴ Department of the Environment, Transport and the Regions, (1999). *Identification of Marine Environmental High Risk areas (MEHRA's) in the UK*.

locations around the UK. Concerns remain that selected areas may not include the “at risk” areas specifically identified by WWF and other NGOs.

Current contingency plan arrangements

The Maritime Coastguard Agency (MCA) is the first point of contact in any marine emergency, its first responsibility and priority being immediate response to threats to life and limb. Counter pollution (CP) response also falls under the remit of the MCA and its Counter Pollution and Response Branch. The CP unit includes Counter Pollution Salvage Officers (CPSO) who are based in regional centres around the UK. The CPSO is supported not only by local experts in each region but also has additional logistical and specialist expertise support from MCA headquarters in Southampton.

In order to maintain preparedness in the event of dealing with a CP incident, the MCA coordinates a major training exercise every year, and undertakes regular exercises such as residential courses, beachmaster training, and decision-making workshops for local authorities. CP response to any incident is based on a three-tiered system. Tier 1 is a small operational spill involving local resources for clean up; Tier 2 is a medium spill requiring regional assistance; and Tier 3 is a large spill demanding national assistance and resources. The latter will automatically trigger the activation of the UK National Contingency Plan (NCP) for Marine Pollution from Shipping and Offshore Installations, which provides the overarching strategy. The MCA Counter Pollution and Response Branch oversees CP arrangements in the UK including responsibility for activating the NCP¹⁵.

The coordination of support during and after an oil pollution incident

The government plays a leading role on pollution incidents from ships. Ports, harbours, oil facilities and offshore installations have a statutory responsibility for the clean-up of their areas. Local authorities take the lead in dealing with pollution of the shoreline, and maintain additional links with Regional Environment Groups and local authority plans.

Emergency Response to Coastal Oil, Chemical and Inert Pollution from Ships

Research into contingency planning, at the EU level, was initiated following the *Prestige* incident in 2002. This has highlighted inconsistencies and a variety of approaches among partner countries. The Emergency Response to Coastal Oil, Chemical and Inert Pollution from Shipping (EROCIPS 2004-2007)¹⁶ project has drawn the following conclusions:

- Regional/bilateral cooperation is not uniform.
- National approaches differ, for example either centralised (UK) or decentralised (France).
- Interpretation of international guidelines (International Maritime Organisation (IMO), International Tanker Owners Pollution Federation Ltd (ITOPF), International Petroleum Industry Environmental Conservation Association (IPIECA)) vary.
- There is no harmonised approach to risk analysis or sensitivity mapping.
- Priorities for protection are not always included in Contingency Plans.
- Waste management is not always included in contingency plans.

¹⁵ Maritime and Coastguard Agency, 2005. *Environmental – Counter Pollution and Response*.

¹⁶ EROCIPS [www.erocips.org].

Part 2: Shipping issues 10 years on – what next?

The 10th anniversary of the *Sea Empress* disaster is an opportunity to take stock. Significant efforts have been made to prevent another disaster; however, complacency is not an option. The following issues have been identified as priority areas for future work:

1. threats posed from the increased export of Russian crude oil;
2. ship-to-ship transfers; and
3. new navigational hazards.

1. THE THREAT FROM THE INCREASED EXPORT OF RUSSIAN CRUDE OIL

Exports of Russian export blend crude oil (REBCO) are increasing yearly from major export terminals in the Barents, Baltic and Black Seas. It is estimated that approximately 60 million tonnes of oil are exported from Murmansk in the Barents Sea, and export figures via the Baltic Sea are estimated to be between 160 and 180 million tonnes. The characteristic of Russian crude oil varies according to where it originated, and this has significant implications for planning response strategies to possible pollution incidents. REBCO that is exported through the Baltic Sea is particularly persistent being dense (0.8674 kg/l) and thick (4.58cS @20C). Exports from the Baltic increased by 60-80 million tonnes between 2003 and 2004, and it is anticipated that this figure will continue to rise at least until 2010 when Russian oil production is expected to reach a peak of 510 million tonnes¹⁷. Navigational limitations in the Baltic prevent large deep drafted oil tankers from trading. Consequently, for export costs to be kept to a minimum there is a requirement to transport the oil out of the Baltic on smaller vessels which then transfer their cargo to a larger vessel for transshipment to India and the Far East. This process is known as ship-to-ship transfer.

2. SHIP-TO-SHIP TRANSFERS (SST)

SST has taken place around the UK coast since the early 1960s, and locations have been chosen that were close to the main shipping routes and that could also provide some form of shelter from inclement weather. These transfers initially were to “lighter” vessels, so that they could proceed to shallow water European ports. After the *Braer* incident off the Shetland Isles, the findings of Lord Donaldson’s 1994 inquiry, *Safer Ships, Cleaner Seas*, recommended that SST be restricted to two areas in Southwold in Suffolk and Lyme Bay in Dorset. The nature of SST has now altered and is increasingly being influenced by the new and expanding trade in Russian oil, which is exported either via Murmansk and the Barents Sea or through the Baltic Sea.

The need to transfer at sea is invariably dictated by the available depth of water, which may prevent the passage of large deep drafted oil tankers. Consequently, smaller vessels are utilised as shuttles at the exporting port (Baltic Sea) or importing port (Lyme Bay). This process involves the use of three to six shuttle tankers in the region of 18-50,000dwt¹⁸ that service a “mother ship” of about 250,000dwt.

¹⁷ Russian Industry and Energy Minister Victor Khristenko, Moscow News, 25 October 2005.

¹⁸ dwt – deadweight tonnage; the ship’s carrying capacity in tonnes.

The regulatory control of SST

Transfers that take place outside the 12 nautical mile (nm) limit are not regulated, but do fall within the UK Pollution Control Zone (200nm), meaning that response to a pollution incident would fall under the National Contingency Plan for Marine Pollution from Shipping and Offshore Installations. The regulatory control of SST within 12nm has not yet been formalised and remains in the hands of the Department of Transport in draft form (Merchant Shipping (Ship-to-Ship Transfers) Regulations, 1999). Guidance notes, issued by the MCA, are also in draft form and are contained in Merchant Shipping Notice 1739 – Ship-to-Ship Transfers of Dangerous or Polluting Cargoes at Sea. The International Maritime Organisation is discussing amendments to MARPOL 73/78 Annex I (Prevention of pollution by oil) that will also impact on SSTs in future¹⁹. Industry guidelines are contained in the Ship-to-Ship Transfer Guide²⁰, Recommendations for Oil Tanker Manifolds and Associated Equipment (1991), and Mooring Equipment Guidelines (1997).

Under present UK draft regulations for SSTs taking place within 12nm, requirements include:

- Contingency planning for oil spills, through the use of Ships Oil Pollution Emergency Plans (SOPEPS).
- The presence of a recovery vessel on stand-by that is capable of containment and collection for vessels transferring particularly persistent cargoes.
- Notification to the MCA Counter Pollution branch at least 72 hours prior to any transfer taking place.

In their current format, as and when the government regulations enter into force, they will ban all transfers from taking place at sea within UK waters²¹. The effect of this will be to force transfers to take place within the confines of harbour and port authorities, or to push the transfers to take place in unregulated international waters (outside territorial waters). SST sites around the UK that already operate within the confines of harbours and port authorities include Scapa Flow in the Orkneys, Sullom Voe in Shetland, and Nigg in the Cromarty Firth.

The MCA conducted a risk assessment into SST during 1997; however, this assessment would not have taken into account the new nature of SST around the UK. While SSTs have been carried in the UK safely for many years, there are always inherent risks associated with any oil terminal operation such as manifold leaks, pipelines coming adrift or being blown apart. Additional problems could be caused by a mother ship dragging her anchor, the sudden onset of bad weather leading to pipe separation between vessels, or collision while berthing – although at low speeds expected damage would be minimal.

Ship-to-ship transfers – the current situation

There has been a sharp rise in SSTs taking place within territorial waters over the last three years, and this rise correlates with the increasing levels of the export of REBCO. MCA figures for SSTs activities in the UK are five in 2003, five in 2004 and 16 in 2005 (N.B. these figures refer to the mother ship only and exclude the shuttle vessels). All the SSTs in 2005 took place

¹⁹ MEPC 53.

²⁰ ICS/OCIMF Guide, 2005.

²¹ Statutory Instruments, 2003No.Draft. *Marine Pollution. The Merchant Shipping (Ship-to-Ship Transfers) Regulations 1999.*

off Southwold, as SST has been suspended in Lyme Bay since 2004, following concerns over the lack of regulatory controls and pollution risk. This concern can be linked to the changing nature and type of oil being transferred²².

In light of the proposed changes to SST regulatory control and with the growing volume of oil from Russia, oil companies are actively looking for additional areas that can be used for SSTs. Not only will these new sites have to be within the confines of a harbour or port authority in order to meet the proposed regulatory requirements, but they must also be situated close to international shipping routes that service the Indian and Far East markets.

Currently, oil from the Barents Sea is transported down the west coast of Norway towards Scapa Flow, Sullom Voe or Nigg, where it may be transhipped to larger vessels. Routeing would then proceed through the Pentland Firth, passing to the west of the Hebrides and out into the Atlantic. During inclement weather, it may be expected that vessels are routed through the Irish Sea and then into the Atlantic. Oil from the Baltic may be transhipped at Sullom Voe or Scapa, in which case it would follow the same route described above. Alternatively, it may be transhipped off Southwold, in which case routeing would take place via the Dover straits, the English Channel and onwards into the Atlantic.

Falmouth and the Firth of Forth – potential new ship-to-ship transfer locations?

New areas highlighted as potential SST sites include Falmouth and the Firth of Forth. Both sites are receiving strong local opposition, particularly as there is little anticipated economic gain to offset the potential pollution risks. The relevant port authorities that stand to gain economically, however, are actively seeking to proceed.

At present, local authorities do not play a role in the supervision of SST operations²³. The main requirements that port or harbour authorities have to fulfil are an environmental assessment (either an Environmental Impact Assessment (EIA) under the EU EIA Directive, or an appropriate environmental assessment if required under the EU Habitats Directive, i.e. the operation is likely to impact SAC designations), and the production of an Oil Spill Contingency Plan, which must be put out for consultation to local authorities before being submitted to the MCA for approval. Legislation governing this process is contained in the Merchant Shipping (Oil Pollution Preparedness, Response and Cooperation Convention) Regulations 1998, and in guidance issued by the MCA in the form of Contingency Planning for Marine Pollution Preparedness and Response: Guidelines for Ports.

(i) Falmouth Harbour Commission

Falmouth is situated on the south-west peninsula of the UK mainland. The Fal/Helford Special Area of Conservation (SAC) is noted for not only its shoreline ecology but also for rare marine species such as Couch's Goby (*Gobius couchi*), trumpet sea anemone (*Aiptasia mutabilis*) and pink sea fan (*Eunicella verrucosa*). Falmouth and the surrounding area rely heavily on tourism and fishing to maintain its economy. The adjacent Devon and Dorset coastline includes a World Heritage Site, Ramsar sites, National Nature Reserves, Areas of Outstanding Natural Beauty (AONB), Special Sites of Scientific Interest (SSSI), Special Areas of Conservation and Special

²² Dorset Coast Forum, 2005. *Ship-to-Ship Transfer – an issue in Lyme Bay*. [www.dorsetforum.com].

²³ Dr Ladyman (2005). Parliamentary Report Ship to Ship Transfers (Firth of Forth) 21 Nov 2005.

Protection Areas (SPA), and additional vulnerable reef habitats in Lyme Bay. All the above marine and coastal protected areas could be devastated by a major pollution incident.

Falmouth Harbour is a trust port that is administered by a harbour commission and so is not required to answer to local planning authorities. Falmouth Harbour Commissioners (FHC), keen to be accepted as an SST area, have based their case on that of Scapa Flow where SSTs have been carried out for the last 25 years with no incidents, and where there is the full support of the local community which receives a percentage of revenue generated from the oil terminal. FHC maintains that any surplus revenue will be reinvested in the community²⁴, but the local community feels that the risk is too great and they will not see any economic, social or commercial benefit.

(ii) Forth Ports Authority

The Firth of Forth is situated on the east coast of Scotland, bound by East Lothian and Fife. The firth already sees the movement of many oil tankers that travel up the river to Hound Point and Grangemouth, and has so far has not suffered any serious incidents.

The majority of the East Lothian and Fife coastline is classified as an SSSI; there is also a Ramsar site, and the area forms part of the Forth SPA. A major pollution event would be catastrophic, not only for the local flora and fauna but also the local community.

Forth Ports Authority (FPA), like FHC, is also out of the direct control of the local councils and, therefore, does not require local planning consents to proceed with the development as a SST site. A fully laden Ultra Large Crude Carrier is expected to generate £120 million in revenue for the transporting company, and the fees to Forth Ports Authority per transfer are likely to be considerable. It is estimated that there will be 105 transfers per year.²⁵ This clearly demonstrates the economic gains to be made by any harbour or port authority involved in SST.

3. NEW NAVIGATIONAL HAZARDS

Many parts of the seas around the UK, particularly in coastal areas, are subject to pressures from multiple activities. Consequently, there is need to undertake marine spatial planning (MSP) as part of a holistic ecosystem-based approach to managing the seas. Currently, new offshore activities, such as renewable energy facilities, are being superimposed on patterns of established practice, thereby creating additional navigational hazards to shipping and other vessel-based activities.

The proposed UK Marine Bill provides an opportunity to address these issues and introduce measures to establish MSP. How shipping, or aspects of shipping, currently fit into the Marine Bill is still unclear and requires further clarification. Spatial designations and issues such as MEHRAs and PSSAs, and ships routing measures such as Traffic Separation Schemes and Areas to be Avoided could be considered within the context of MSP.

In addition, an explanation is needed as to how the Marine Bill, and its influence on shipping, articulates with the prospective European Commission's Marine Strategy Package and future EU Maritime Policy.

²⁴ Falmouth Harbour Commissioners, 2005. *Ship-to-Ship Transfers – Update November 2005*.

²⁵ Letter to Alistair Darling MP, 2 August 2005 from MSPs Chris Balance, Mark Ballard, Robin Harper and Mark Ruskell.

PRESSURES THAT MAY FURTHER TEST CONTINGENCY PLANNING AND QUESTIONS THAT NEED TO BE ADDRESSED

1. Climate change

The predicted impacts of climate change include increased storminess, changing wind/wave climate and more unpredictable conditions. Consequently, assumptions concerning sheltered and safe areas will need to be periodically reassessed.

2. EU Waste Directive

This Directive poses the potential for significantly increased costs of reprocessing waste in the event of a major spill. How would local authorities deal with the cost of processing the 25,000 tonnes of waste that resulted from the *Sea Empress* spill?

3. Liability

There is still no statutory requirement for local authorities to have contingency plans. Responsibility is a grey area; for example, who owns that beach? What constitutes reasonableness of actions, and how easy will it be to recover costs?

4. Lack of Statutory Guidelines for SST

Why have the guidelines been in draft format for so long?

5. Provision of ETVs

There are still large areas of water around the UK that are not effectively covered by the large “year round” ETVs – the north-east coastline and adjacent North Sea, and the Irish Sea (including Milford Haven). Regarding the Irish Sea, why have talks with the Irish government stalled? Will an additional ETV be made available should SST off Southwold continue to increase?

Conclusions and recommendations

Three issues, in particular, stand out for review and action:

1. THE ESTABLISHMENT OF MEHRAS

MEHRAs should be identified around the UK and implemented at the earliest opportunity. Associated Protection Measures approved through the IMO should be introduced within individual MEHRAs to minimise the risks from shipping activities. A case could be made for their inclusion within the Western European PSSA to complement this internationally recognised designation and thereby enabling a higher level of protection to particularly vulnerable areas.

In view of the presence of the Western European PSSA (covering the south and west of the UK), there may be a false complacency regarding the need for the protection of additional areas that are not covered by the PSSA designation – i.e. the east coast of England and Scotland, and the Irish Sea. MEHRAs, therefore, could provide much-needed awareness and protection for areas along parts of east coast of the UK that are seeing rising levels of maritime activity. In particular, those areas that are not adequately covered by ETVs and have high levels of SST or where SST operations are anticipated to increase.

2. THE LACK OF A DEDICATED ETV IN THE IRISH SEA

There have been discussions with the Irish government to arrange a bilateral agreement and funding of an ETV to cover the Irish Sea, but little progress has been made. MHPA is very keen to have the presence of an ETV and has offered to provide a free berth and waive all port dues if one is stationed at Milford Haven.²⁶ At present, the closest ETV is based in Falmouth, approximately 148nm away. If a tug proceeded at full speed from Falmouth to Milford Haven after a mobilisation call, it would take more than nine hours to reach the area. This assumes good sea conditions, speed of 17 knots and an ability to mobilise instantly; consequently, a time in the region of 14 to 18 hours to reach the area is more realistic.

3. LACK/DELAY OF STATUTORY REGULATION GOVERNING SST

The current draft regulations need to be reviewed, amended and pushed through Parliament without delay. The rise in the export of REBCO and consequent requirement for additional SST areas brings with it the potential for a major pollution event that no amount of contingency planning can deal with.

There is a need for a new risk assessment of SST to be undertaken by the MCA in light of the changing nature of the operation. This risk assessment should not only cover generic SST operational issues, but should also look at specific SST locations.

Protection of the marine environment is paramount and should be granted the same consideration as commercial interest.

²⁶ Personnel communication. MHPA.

Overview

TEN YEARS ON – COULD A SEA EMPRESS EVENT HAPPEN AGAIN?

The ingredients for a major oil spill disaster are still present. Key factors include:

- increased tanker traffic alongside other maritime activity;
- transportation of highly persistent polluting cargoes, such as REBCO;
- poor quality and overworked crews (this is a concern not only in the UK but worldwide);
- the presence of medium to high risk areas/routes through which tankers are transiting – i.e. areas of high maritime activity such as the southern North Sea, Dover straits and South Western approaches; and
- the presence of sensitive marine areas and coastlines, such as Pembrokeshire and surrounding islands, the World Heritage Coast of Dorset, and the Minches off the west coast of Scotland.

What would be the consequences of a major shipping incident?

The resulting adverse impacts would include severe local environmental impacts, associated local and regional socio-economic costs, and national political and institutional credibility issues.

Key impacts are likely to include:

- acute and chronic or long-lasting ecological damage to wildlife and habitats;
- damage to fisheries already challenged by other pressures;
- loss to any tourist economy;
- public safety issues linked to loss of access to coastal zone due to clean up;
- financial penalties (previous incidents have seen compensation delays and compensation shortfalls); and
- loss of public confidence in local and national government and authorities.

Would we be better prepared to deal with a major spill?

Investment in systems and solutions should result in efficient and effective response. However, each and every circumstance is unique; the UK has 17,000km of coastline and an extensive Pollution Control Zone (200nm from the coastline or to the nearest median line with neighbouring coastal states), and the goal posts keep moving – there are different products, different operators, new legislation, financial pressures, and a changing environment with increased storminess as a result of climate change.

What is WWF doing to make a difference?

- Working with the international shipping community to inform decisions and set demanding targets.
- Lobbying government to implement MEHRAs, clarify the status of outstanding recommendations from the Donaldson reports, and take action to prevent future accidents.

- Lobbying government to review risk assessment and push through legislation pertaining to SST, ensuring adequate environmental and safety measures are established across UK and at individual SST locations.
- Ensuring that the proposed Marine Bill provides an adequate framework and considers all relevant shipping issues under marine spatial planning.
- Raising public awareness of the threats to marine species and the importance of marine conservation in UK waters.
- Supporting research that informs decision-making in the coastal zone.

Annex 1

LORD DONALDSON'S REVIEW OF SALVAGE AND INTERVENTION AND THEIR COMMAND AND CONTROL, 1999

Following the grounding of the *Sea Empress* and consequent spill, a review was conducted by Lord Donaldson that looked at the powers of State intervention and the command and control of salvage.

The review made four fundamental conclusions:

1. Incidents that threaten or cause marine pollution are many and varied; and the seriousness and speed with which they can escalate precludes the involvement of Ministers in operational decisions. While there is a need to inform Ministers, particularly in serious incidents that may subsequently become accountable by Parliament, there is a need for operational decisions to be left in the hands of the Secretary of State's representative.
2. Once an incident has developed to the point at which government is entitled and responsible for giving directions (i.e. a "trigger" point is reached), the government must from this point on maintain responsibility of monitoring and controlling the whole operation. This control need not be active, but should be in the public interest and ensure that the environment is safeguarded to the greatest possible extent. If there is a difference of opinion as to the best way of achieving this, in the over-riding interest of the public, the Secretary of State's representative will take a more active role and assert responsibility for controlling the operation.
3. The Maritime Coastguard Agency should play a much larger part in any operation that threatens significant pollution than they had previously. This would take advantage of the fact that they are invariably the first point of contact in any potential incident, and the expertise of their general staff and support staff in dealing with an incident.
4. Government response to a significant pollution event from or involving an offshore installation must be compatible with its response to dealing with a pollution threat from shipping.

In order to address these conclusions, the review made 26 recommendations covering the adequacy of the powers of intervention and associated problems (eight recommendations), a new approach to dealing with incidents (13 recommendations) and offshore installations (five recommendations). The majority of these recommendations were accepted by the government.

Addressing the recommendations

The UK National Contingency Plan for Marine Pollution from Shipping and Offshore Installations (NCP) has its legal basis in the Merchant Shipping Act 1995 (amended by the Merchant Shipping and Maritime Security Act 1997) and meets the requirements of the International Convention on Oil Pollution Preparedness, Response and Co-operation 1990.

The NCP addresses many of the recommendations set out by the Donaldson review with the recommended response units forming the basis of the plan. These units are:

- Major Incident Liaison Team

- Salvage Control Unit
- Marine Response Centre
- Shoreline Response Centre

The Offshore Installations (Emergency Pollution Control) Regulations of 2002 have been made under the provision of the Pollution Prevention and Control Act of 1999, and implement the recommendations of Lord Donaldson's review relating to the oil and gas industry.

Recommendations that appear to be outstanding or are still in the consideration and development stage include:

Recommendation 7 which requires an amendment to the Water Resources Act in order to ensure that jettison and unavoidable pollution if undertaken in order to avoid greater pollution is not treated as an offence. It also questions whether accidental pollution as a result of a salvage operation is a criminal offence.

Recommendation 8 requires an examination of regulation 11 of MARPOL and whether the defence of discharge of pollutant in order to minimise damage by an owner or master of a vessel can also be used by the salvor or harbour master as a defence.

Recommendation 18 addresses the need to develop comprehensive databases of environmental data relevant to marine pollution incidents. While work has been done on this, and a variety of metadata sets are now available, it is unclear whether a national database has been compiled that brings together all relevant information and in a way which can be readily accessed.

Annex 2

SAFER SHIPS, CLEANER SEAS (1994)

Report of Lord Donaldson's inquiry into the prevention of pollution from merchant shipping

Following the *Braer* incident off Shetland in 1993, when 84,700 tonnes of oil was discharged into the sea, an inquiry was carried out by Lord Donaldson into how the UK could protect itself from pollution by merchant shipping. This report made 103 recommendations across 20 topic areas relating to protection of the UK coastline from pollution caused by shipping. The government has acted on all but five of Lord Donaldson's recommendations.

The five outstanding recommendations are:

Recommendation 58, which relates to cruise ships entering unusually environmentally-sensitive areas. The International Council of Cruise Lines, which represents about 85 per cent of the world cruise industry, has guidelines and a code of practice governing pollution and operational practices in environmentally-sensitive areas to which its members adhere. But there is no industry-wide standard.

Recommendation 59 pertains to the establishment of Marine Environmental High Risk Areas (MEHRAs). While work has been carried out which identifies suitable areas, this has not been carried to fruition by the government.

Recommendation 60 is linked with MEHRAs and addresses the issue of routing measures and special entry reporting conditions when entering sensitive areas. These would need to be at EC level and under the auspices of the International Maritime Organisation (IMO).

Recommendation 64 addresses the issue of changes to the Ship-to-Ship Transfer (SST) area at Lyme Bay. This issue was not addressed and at present is redundant as there have been no SSTs in Lyme Bay since 2004.

Recommendation 67(d) calls for an international agreement on the introduction of transponders – Automated Identification Systems (AIS) – on fishing vessels and larger sea-going leisure boats. The International Ship and Port Facilities Security Code (ISPS) now requires all merchant ships over 500 gross tonnes to have AIS fitted, but to date there is no similar requirement for fishing vessels or leisure boats.

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