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International Association of Oil & Gas Producers

# Economic assessment and compensation for marine oil releases

## Good practice guidelines for incident management and emergency response personnel

Oil spill preparedness

Advancing environmental and social performance across the energy transition

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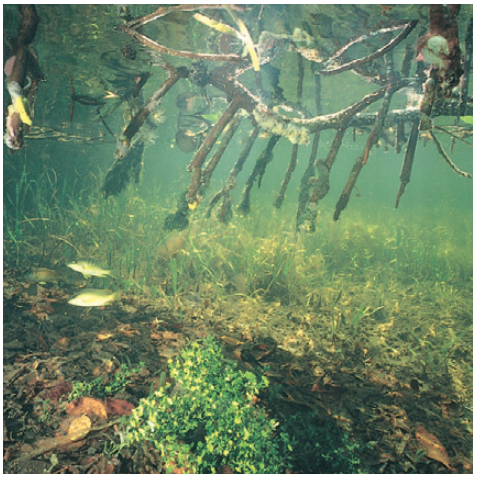

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# Summary

This publication is part of the Ipieca-IOGP good practice guide series which summarizes current views on good practice for a range of oil spill preparedness and response topics. The series aims to help align industry practices and activities, inform stakeholders, and serve as a communication tool to promote awareness and education.

The increasing demands of populations around the globe have led to the sea and coastlines being used for increasingly intensive economic and commercial activities, as a source of food, a means of trade and for leisure activities. Despite the best efforts of those involved in an oil spill response, a release of oil at sea may interrupt such activities and lead to economic losses for the variety of organizations and individuals involved. Compensation for such losses may be available in various circumstances, dependent upon a number of factors, primarily the source of the release and the legislation in place in the country in which the pollution damage occurs.

This document considers the types of environmental and social damage and economic injury that may result from a release of oil. The effects of oil on the fisheries and tourism sectors, as well as on other commercial activities, are described. The sources of funds that may be available to compensate for such damages are identified, and the legislation and compensation schemes that enable payments are explained. The methods by which the various types of economic damage can be quantified and calculated under the schemes, and the procedures necessary for submitting claims for losses are outlined, including claims for the costs of a response, as well as for property damage and for economic loss.

The document concludes by considering liability for compensation for damage to the environment in a number of jurisdictions. In some legal regimes, such liability is limited to the cost of restoration of the environment. In other regimes, liability extends to compensation for loss of human use and depletion of natural resources, estimated by economic means.

A rocky shoreline heavily contaminated by oil following a spill.

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Section 1

# Impacts of oil on economic activities

A release of oil can have wide-ranging impacts on the marine environment. This section describes the disruption that can occur for individuals, businesses and organizations engaged in commercial and recreational fishing, mariculture and coastal tourism, as well as the impacts on other sectors such as ports and shipping, power generation, desalination and salt production.

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# Impacts of oil on economic activities

The marine environment can be impacted by a release of oil, with human activities that rely on seawater and coastal areas affected both directly by the oil and indirectly, either through clean-up activity or by imposed restrictions. Disruption can occur for individuals, businesses and organizations engaged in commercial and recreational fishing, mariculture and coastal tourism, with potential disruption in many other sectors, for example port and shipping activity, power and desalination plants and salt production. This section of the document considers the potential for damage to such activities and industries.

## Fisheries and mariculture

Fisheries are potentially vulnerable to releases of oil through:

- Physical contamination
- Toxicological effects
- Disruption to recreational and commercial activities in the event of fishery closures

The nature and extent of the damage is dependent upon multiple factors, which may include the physical and chemical characteristics of the oil released, the circumstances of the incident and the type of fishing activity or business affected. The disruption to recreational and commercial fisheries and mariculture businesses, and the potential for substantial economic loss, can be among the most extensive financial consequences of an oil release. This section of the document briefly introduces the types of fishing and the potential effects that can arise as a result of an oil release.

The capture or collection of wild species can take many forms, with a wide variety of fish caught in many different ways. Examples include large-scale, heavily mechanized and industrial purse-seining for species including anchovy, herring and sardine, the capture of tuna by lines, the smaller-scale fishing of large numbers of shrimp or prawns caught in trawl nets, and the collection of lobsters and crabs in pots. Molluscs, such as abalone, clams, mussels, octopus, scallops and squid are also captured and collected by various methods, including hand gathering. Although not fishing per se, the collection of marine plants, e.g. samphire and seaweeds, such as nori used in sushi, and kelp, may also be important in this context.

The great majority of species are captured or collected for human consumption, including fish-oil supplements, or feedstock for other animals, for example fish-meal products. Minority industries include fertilizer and luxury goods, such as pearls. Recreational and sport fishing, for pleasure and competition, are also prevalent in many areas of the world.

In contrast, mariculture involves the cultivation of marine species, and encompasses a broad range of activities such as the farming of salmon in cages, growing scallops and mussels on lines suspended from rafts, and cultivating oysters on racks and seaweeds on ropes or nets suspended between floats. Mariculture activities onshore include raising prawns in seawater ponds or raceways, and growing various species in seawater tanks.

The chain of businesses involved in the production of seafood can be extensive, comprising owners of fishing vessels or mariculture facilities, processing companies, markets and wholesalers, and retailers or restaurants supplying consumers. Businesses servicing this supply chain include ship chandlers, fuel and feed suppliers, ice and packaging producers, and transport and haulage companies. The extent to which such businesses are affected by a release of oil will be dependent in part upon their proximity to the area affected by the release.

Potential impact may occur when oil is carried near or onto a shoreline, where animals and plants may be physically coated and smothered by oil or directly exposed to toxic components over extended periods of time. Sedentary species, such as edible seaweeds and shellfish, are particularly sensitive to both smothering and oil toxicity. In addition to mortality, oil may cause more subtle effects on behaviour, feeding, growth or reproductive functions. However, because populations of many marine species normally exhibit significant natural fluctuations, the sub-lethal effects due solely to a release of oil can be difficult to isolate.


Jenifer Baker


Jenifer Baker

The chain of businesses involved in the production of seafood can be extensive, comprising owners of fishing vessels or mariculture facilities, processing companies, markets and wholesalers, and retailers or restaurants supplying consumers.

In some circumstances seafood may develop an unpleasant taint or taste. For example, caged fish, and molluscs that filter substantial quantities of water, risk ingesting oil suspended in the water column that may accumulate in tissue. Fishing gear and cultivation equipment can be oiled, with the potential for indirect contamination of catches, or stock, or the suspension of fishing and cultivation until the equipment is cleaned or replaced. In addition to the losses of individual operators, the interruption of subsistence, recreational and commercial fishing and the disruption of seafood cultivation cycles may also have wider economic consequences. The loss of confidence by retailers and consumers in the products of an affected region may also lead to a decline in sales and result in economic loss, without contamination of the products occurring.

A surface release of oil, for example from a ship, may spread rapidly and disperse naturally into the water column without causing mortality or significant harm. As a result, free-swimming adult marine animals are often unaffected by surface releases of oil in the open sea. Marine species cultivated in fixed locations may be at greater risk due to an inability to avoid exposure to oil on, or in, the surrounding water. In instances where impacts do occur, they are usually confined to an area near the source of the release. A release of oil from a source within the water-column or from the seabed may give rise to underwater plumes of oil, the effect of which may vary on commercial species.


Jenifer Baker


Peter Vine

Examples of traditional fisheries: (left) a beach seine in the Philippines; and (right) fish traps in the UAE.

Coastal communities in many parts of the world rely on fishing as an essential source of food, barter and income. Oil may contaminate traps, vessels and other gear in the short term, and may also have longer-term consequences if fish or shellfish spawning or nursery habitats are impacted, for example in wetlands, such as mangroves or saltmarshes. While the threat of oiling remains and clean-up is undertaken, an alternative source of food may be required by an affected community.

Measures taken to combat a release of oil may also have an impact on seafood. For example, aggressive or inappropriate clean-up techniques, such as indiscriminate shoreline cleaning with high pressure or hot water, can adversely affect commercially exploited species.

The seasonal cycles of fishing and mariculture activities vary according to the type of species. As a consequence, the sensitivity of a species to a release of oil can be seasonally dependent and vary according to the life stage of the species at time of the release. For example, fishing may take place in a particular location for a limited number of weeks a year due to fish migration, or harvesting of a particular species may be followed by planting of the next generation some months later. Both examples result in a period of several months during which a potential release may have a reduced impact on the associated business. The effects of seasonality also extend to the rearing of species in onshore tanks supplied with pumped seawater.

The extent and nature of the effects of an oil release on fisheries or mariculture are dependent upon a combination of factors. For example, the volume of oil released may not, in itself, be a reliable indicator of the likely extent of the impact; the physical and chemical properties of the oil, the pathway by which the oil reaches the resource, as well as the time of year and other factors, should all be taken into account. The effects of an oil release should also be clearly distinguished from the consequences of other events, such as:

- Natural fluctuations in abundance
- Variations in fishing effort, including overfishing
- Climatic effects, e.g. El Niño
- Contamination from industrial or urban run-off

The case studies on pages 9 and 10 describe the measures taken to protect the fisheries food chain during two significant oil spill incidents, in 1993 and 2010, respectively.

## CASE STUDY 1: ESTABLISHMENT OF A FISHERIES EXCLUSION ZONE OFF SHETLAND, UK IN 1993
Response to the *Braer* incident

On 5 January 1993, the tanker *Braer* lost power and grounded on the southern point of the Shetland islands in the UK, releasing 84,700 tonnes of Norwegian Gullfaks crude oil and ~1,600 tonnes of heavy fuel oil. A combination of the light nature of the cargo and exceptionally strong wind and wave energy dispersed a significant part of the oil naturally into the water column. Subsurface currents spread the oil over a wide area. A significant portion of the oil eventually settled in two deep, fine-sediment sinks.


RSPB

The tanker *Braer*, grounded off Shetland in 1993.

To avoid the risk of contaminated fish and shellfish entering the food chain, a fisheries exclusion zone was imposed, with monitoring of seafood commencing immediately after the incident. The primary concern centred on the commercially important salmon mariculture industry. No fish mortality was observed. However, testing for aromatic oil contamination (benzene and naphthalene) showed that approximately 20% of the salmon farms in Shetland, close to the incident, were contaminated, with stock tainted by the naturally dispersed oil. Harvesting of mature salmon stock in the affected area, for onward sale, was suspended. Importantly, the seafood testing allowed continued marketing of uncontaminated stock by unaffected salmon farms.

Concentrations of polyaromatic hydrocarbons (PAH) in fish tissues declined gradually once clean water conditions returned, a process called depuration. Nevertheless, depuration of the mature fish was not completed in time for sale and the remaining stock of mature fish, ~1,700 tonnes, was removed and destroyed. Younger fish, due to be harvested the following year, were expected to have depurated in time for sale but the local authorities maintained the harvesting ban and a further ~3,500 tonnes of fish were destroyed. Fresh smolt were introduced to the affected farms in the spring of 1993 and were harvested successfully two years later.

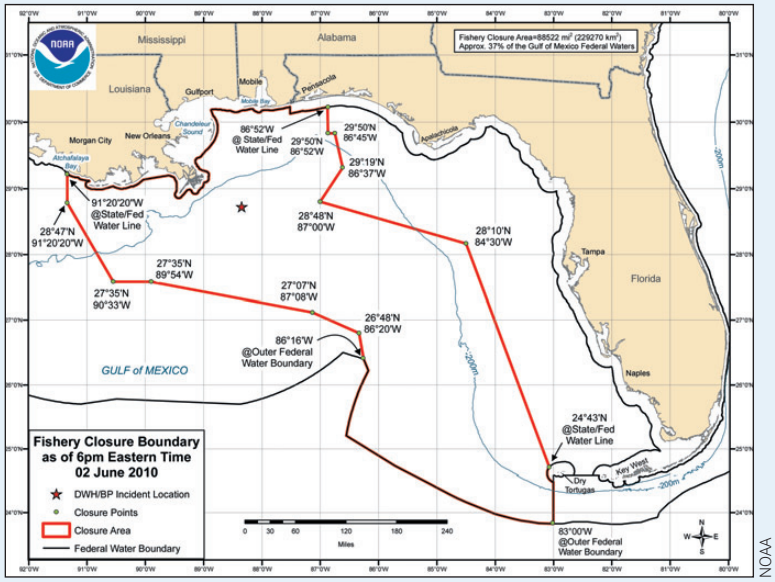
A large number of local fishing vessels were engaged in the monitoring of wild fish stocks. Fish caught inside the initial exclusion zone were found to be contaminated, but at levels lower than recorded by the farmed salmon. Nevertheless, the initial exclusion zone was extended after two weeks to encompass an additional area in which contaminated fish had been caught. The exclusion zone for wild finfish species was lifted after three months in April 1993 on the basis of monitoring results.

The initial fishery exclusion zone was extended to include a supplementary area of shellfish. Crustaceans and molluscs were detected to be initially more contaminated than wild fish, due to their intimate contact with oiled sediment and to their slower rate of depuration. Exclusion orders were lifted for most shellfish between September 1994 and February 1995. An exclusion order remained in place for small areas of the fishery for Norway lobster and mussels until March 2000.

Compensation for clean-up and pollution damage resulting from the *Braer* incident was provided by the shipowner's P&I Club under the 1969 Civil Liability Convention and by the International Oil Pollution Compensation Fund under the 1971 Fund Convention. Total fishery-related losses amounted to ~UK £38.5 million.

## CASE STUDY 2: FISHERY CLOSURES AND SEAFOOD MONITORING IN THE GULF OF MEXICO, USA, IN 2010
Response to the Macondo incident

While drilling at the Macondo Prospect, 64 km off the coast of Louisiana, USA on 20 April 2010, the mobile rig Deepwater Horizon suffered a blowout and explosion resulting in the deaths of 11 crew and the sinking of the rig. The accident led to the release of crude oil from the well head, at a depth of ~1,500 metres, for 87 days until the well was capped on 15 July 2010. The total volume of oil released is in dispute, with estimates ranging from approximately 518,000 $m^3$ by the well owner to 507,000 $m^3$ by the US government. The oil spread underwater and on the sea surface, and approximately 1,600 km of shoreline was affected to varying degrees. The application of chemical dispersants, both subsurface and on the surface, enhanced dispersion of the oil into the water column, limiting the extent of coastal contamination.




Map showing the fishery closure boundary in the Gulf of Mexico, as at 2 June 2010.

The US authorities, comprising several government agencies, established a programme to determine the extent of contamination in seafood. Existing seafood sampling programmes were adapted, and an emergency rule was issued to close a part of the Gulf of Mexico to the commercial and recreational harvesting of all fish and shellfish as a precautionary measure. In addition to reducing the risk of potentially contaminated products reaching consumers, the closure served to reduce the risk to fishermen from the oil and from associated clean-up activities.

Continuous and extensive monitoring and modelling of the movement of the surface oil, allowed a number of adjustments to the extent of the fishery closure to be made over the following 11 months. The first fishery closure in federal US waters occurred on 2 May 2010 (day 13 of the incident), and at its peak in June 2010, an area of 88,522 $mi^2$ (229,270 $km^2$ ), or ~37%, of federal waters were closed to fishing.

Sensory analysis of seafood samples was undertaken by the government agencies before closed areas were reopened for fishing. Since May 2010, federal and State agencies tested more than 10,000 seafood samples for detectable oil or dispersant odours or flavours, and for oil- and dispersant-related compounds. All of the tested samples were below the levels of concern for human consumption, and none exceed the thresholds for human health established by the US Food and Drug Administration. The fishery closure area was reduced gradually, as areas considered to be uncontaminated were reopened for fishing. The area near the well head was the last portion of the federal fishery to be reopened for all fishing on 11 April 2011. Fishery seasons for a number of species were extended to allow species capture quotas to be met.

Many local fishermen claimed that their ability to harvest fish or shellfish was impaired during the closures, and sought compensation for loss of income from the Responsible Party under US national legislation. In 2012, a federal court approved a settlement that provided USD 2.3 billion in compensation to a class of fishermen who incurred such losses. There were also claims lodged by fishermen regarding unimpacted areas, that the stigma attached to the Gulf of Mexico incident reduced the value of their catch as well as their ability to sell it.

Conversely, if fisheries are closed for a period of time because of concerns about the impacts on seafood following an oil release, those closures may subsequently result in increased catches. Where reliable data to describe the conditions, or the levels of harvest or sales existing prior to the release are not available, the ability to accurately identify the extent of the impact of the release can be challenging.

If oil is observed in the vicinity of a fishery, or sampling and testing have shown that oil has affected fish stocks, public health concerns may lead to products being withdrawn from public sale. Media coverage of oil contamination, or word-of-mouth reports, can have implications for the marketability of seafood, and loss of market confidence may result. This can lead either to price reductions or outright rejection of seafood products by buyers. To some extent, these circumstances may be addressed by seafood testing by regulators to allay concerns, as well as by focused marketing campaigns if the seafood is safe for consumption.

Government agencies may decide to introduce restrictions on fishing or on the sale of seafood products as a precaution or to address perceived risks to human health. Such restrictions could be maintained as long as monitoring, through methodical sampling and analysis of stock or seawater, provides evidence of contamination; such monitoring also helps to ascertain the point at which levels of contamination are likely to return to baseline levels. Restrictions on fishing imposed by governments can potentially have economic impacts on both organizations and individuals, who may suffer a loss of income as a result of the restriction on their activities.

## Tourism

The varied users of the sea and shore, such as beach visitors, coastal walkers, water sports enthusiasts and leisure fishermen, may be deterred by the presence of oil in the water or on the shore. Disruption of coastal activities can have a consequent effect for hotel, restaurant and bar owners, as well as camp sites, caravan parks, and other businesses and individuals that derive a livelihood from tourism. In addition, local restaurants may have difficulty in obtaining sufficient supplies of seafood to meet customer demand, while businesses that provide goods or services to hotels, restaurants or tourist attractions may also experience economic loss if they are unable to offset losses elsewhere. The consequences of lost tourism business in a particular area can give rise to a reduction in income for local authorities, national parks and heritage sites, and also to road, rail and sea transport companies.

As with the potential effects upon fisheries, the level of disruption to a tourism business depends upon a number of factors. Primary factors are the extent to which the business is reliant upon the coastline affected, and the nature and timing of the pollution impact, often with greater consequences just before or during the main tourist season.

Below: beaches and hotels are a mainstay for tourism; the presence of workers and equipment involved in clean-up activities, and the temporary closure of beaches and coastal attractions, may deter beach users in other locations that may not be affected directly by the oil.

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Beaches and coastal attractions may be subject to temporary closure while clean-up is undertaken, and the presence of workers and equipment may deter beach users in other locations that may not be affected directly by the oil. The movement of trucks and heavy machinery, often required to transport materials and recovered waste to and from affected shorelines, as well as the presence of large numbers of shoreline clean-up workers, may result in additional disruption to local populations.

The effects of a release of oil may first be felt when oil strands on beaches or other shoreline types. However, in high-energy seas, particularly in stormy weather, oily spray can affect property along a seafront or close to the shore, which may require cleaning or repainting. Areas of a shore that are privately owned, for example those associated with holiday homes, may be difficult to clean if access is constrained by absent owners, for example outside the main tourist season.

While a release of oil may be disruptive, the resultant clean-up, as well as the media and public interest that can be associated with such events, may allow some businesses to develop alternative, and in some instances increased, levels of income. Food and lodging will often be required for those involved in the incident, such as clean-up workers, and a wreck or activity close to the shore can attract substantial numbers of spectators.

Tourists who may otherwise travel to, and stay in, the affected area for a number of days or weeks, may decide to cancel bookings and to stay elsewhere. This loss of confidence in a tourist area, sometimes compounded by heightened media and public attention in an incident, can result in a negative impact on the image of the local tourist industry, even if oil has not affected the area directly. Additional expenditure may be incurred by affected businesses and government tourism agencies to mount promotional advertising campaigns to restore public confidence. Again, quantifying the potential economic impact on tourism due to loss of market confidence is dependent upon the availability of reliable baseline financial data to demonstrate a loss of income as a direct consequence of the release and to differentiate it from other events.

## Other

*Aquariums and recreational facilities*

A number of coastal attractions and facilities, including aquariums, marine research centres, seawater swimming pools and thalassotherapy centres, may require a regular supply of clean seawater. The procedures that may be in place to remove debris and common contaminants from inflowing water may be ineffective to protect against large quantities of oil and against soluble oil compounds.

Facility operators may be able to take action to reduce or mitigate the effects of the oil by constructing makeshift filters, closing intakes and recirculating water internally, or transporting animals to alternative locations. Each will be dependent upon the time available between notification of the incident and the arrival of the oil, and may have an impact on stock. In addition to the costs of such actions, attractions may be required to close or may experience reduced attendance figures.

*Vessels*

Vessels may be affected by oil within a port, harbour or marina or when on the open sea. Contamination may be limited to a band of oil on the hull around the waterline but may be more extensive if a vessel is at a drying mooring or if oil enters an engine's cooling system. Vessels involved in clean-up response activity, including fishing vessels, may become contaminated if working in areas of thick oil, especially in heavy seas when oil may be driven on deck, and if retrieving oiled containment and recovery equipment and transporting recovered oil and oily waste.

Light oiling of hulls can often be cleaned in-situ with the vessel remaining afloat, particularly if cleaned quickly, thereby minimizing the opportunity for the oil to affect coatings and the hull itself, and avoiding oil being baked on by strong sunlight. Drying moorings may allow clean-up from the shore but may be affected by other clean-up activity in the intertidal zone.

In instances of heavy oiling, or if the oil has affected coatings or the vessel's hull, particularly in the case of fibreglass hulls, vessels may require slipping or hauling-out for more extensive cleaning or repair. A designated bunded area may be necessary for the task. In other circumstances, larger vessels may require entry to a dry dock. The cleaning work may be undertaken by the vessel owner or by a contractor engaged specifically for the task; in both cases, it is advisable to seek advance agreement on the methods and payment for the work with those who may provide compensation for the activity.

In most instances, permission will be required from the vessel owner to perform the cleaning. In particular, owners of yachts and other pleasure craft may be absent for much of the year, leading to potential delay. Harbour, government and similar vessels, such as pilot boats, customs craft, lifeboats etc. may have additional requirements if in use throughout the response. Cleaning of military vessels may be further complicated by restrictions on access, with clean-up workers requiring security clearance. Commercial craft, notably container ships, are often on tight schedules, and delays caused by cleaning prior to entering or leaving port, or by oil on the water, may have additional impacts, potentially resulting in claims for demurrage.

*Ports, harbours, marinas and terminals*

Ports may be difficult to protect from floating oil due to vessel movements and expansive entrances. Disruption to port activities may result while vessels undergo cleaning or if vessel movements are restricted by the presence of oil. Port infrastructure may be difficult to clean. In particular, oil trapped under wharves and jetties may be difficult to remove if numerous piles or columns are present, and removal activities can be potentially dangerous where a significant tidal range occurs. Cleaning of seawalls can be relatively straightforward using teams of workers in small craft, but may be interrupted by the requirements of berthing vessels. Aged and decaying port infrastructure, for example structures built from wood, may require careful cleaning to minimize additional impacts caused by aggressive clean-up techniques.

Releases of oil from within a dry dock can disrupt working schedules, and cleaning activities may be complicated. The external structure of floating dry docks may be contaminated by oil floating within a port and can again disrupt working schedules. The presence of oil or oily debris in vessel construction or maintenance yards, and other areas of hot working, may present a risk of fire or explosion.

In contrast to ports, the often narrower entrances of marinas or harbours may allow successful deployment of protective booms, providing vessel traffic can be restricted to prevent damage to the boom. Nevertheless, floating walkways, jetties, mooring buoys and ropes may be oiled, necessitating cleaning or replacement.

Ports, harbours and marinas are often protected by sea defences constructed from rock armour or tetrapods. Oil within such structures may be difficult to remove, and the structures themselves may be difficult to clean, leading to a potential for continued secondary oiling from oil and oiled debris released on subsequent tides. Similar problems may be encountered when cleaning artificial islands, reclaimed land and other man-made structures. In contrast, terminals for loading and unloading oil, coal and other bulk cargoes may be built out from the shore on exposed pilings; nevertheless, cleaning these structures can also be challenging.

Closure of waterways, harbours, ports, terminals and other commercially important infrastructure may result in an associated loss of revenue for many parties, such as shipowners, cargo owners and port authorities. Vessels may be required to anchor offshore or remain at a berth until the risk of contamination has reduced.

Oil response activity addresses an incident at an oil terminal.

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*Coastal civil engineering*
Marine sand and aggregate extraction, dredging, land reclamation, and marine and coastal civil engineering work may all be disrupted as a result of an oil release. Smaller projects may be offered protection from floating oil by deployment of containment booms, but larger works may have to be suspended until the risk of oiling has passed or affected shorelines, infrastructure, equipment and other resources have been cleaned. Contracts for the work may include penalties for delayed completion, potentially resulting in associated claims.

Floating oil may become buried, or mixed within sediment or structures in construction sites, and may give rise to further pollution if it is released during subsequent tidal movements. Oil released from pipelines or wells, or floating oil that subsequently sinks, may contaminate subsurface structures and other components of a project. Cleaning of construction sites requires careful supervision to ensure that the work is undertaken effectively in a way that minimizes disruption and that is safe.

*Industrial water intakes*
In addition to the aquaria, onshore mariculture and other facilities mentioned above, many other industries require the use of clean seawater. Power stations, refineries and desalination plants require large volumes of seawater as a coolant and, in the latter instance, as a base material for potable water. Seawater can also be used for regasification of liquefied natural gas (LNG) prior to distribution in gas pipelines.

The ability to protect seawater intakes depends in part on their design, with subsurface intakes at risk from oil plumes and neutrally buoyant oil, and other designs exposed to floating oil, for example simple sea-level channels. Any intake may be difficult to protect in heavy weather.

The ability to reduce the in-flow of seawater as a result of a threat of oiling may depend upon the ability to shut down the facility in the time available. Debris screens may be unlikely to prevent oil entering the remainder of a facility, and the oil may block condenser tubes in power plants, leading to the possible impairment of the cooling function, or to impacts on the osmosis membranes in desalination plants. Alternatively, debris screens may in turn become blocked by viscous oil, preventing the necessary in-flow of water for cooling or desalination. In both instances, a plant may be required to shut down for repair or cleaning, with potential effects on local populations. Nuclear power plants in particular require extensive shut-down procedures and present attendant difficulties for cleaning.

*Salt production*
Salt is produced in many parts of the world by the evaporation of seawater in coastal salt pans via the production of brine. Facilities vary widely from small, local, artisanal ponds dug from saltmarshes, to industrial-scale glazed ponds with water provided by high-capacity pumps. Production may be seasonal, hence the risk and effects from oil releases will be dependent upon the stage reached in the production process at the time of a release. Oil within tiled pans can be cleaned in a relatively straightforward manner, while cleaning mud-based ponds can be difficult if oil penetrates the substrate.

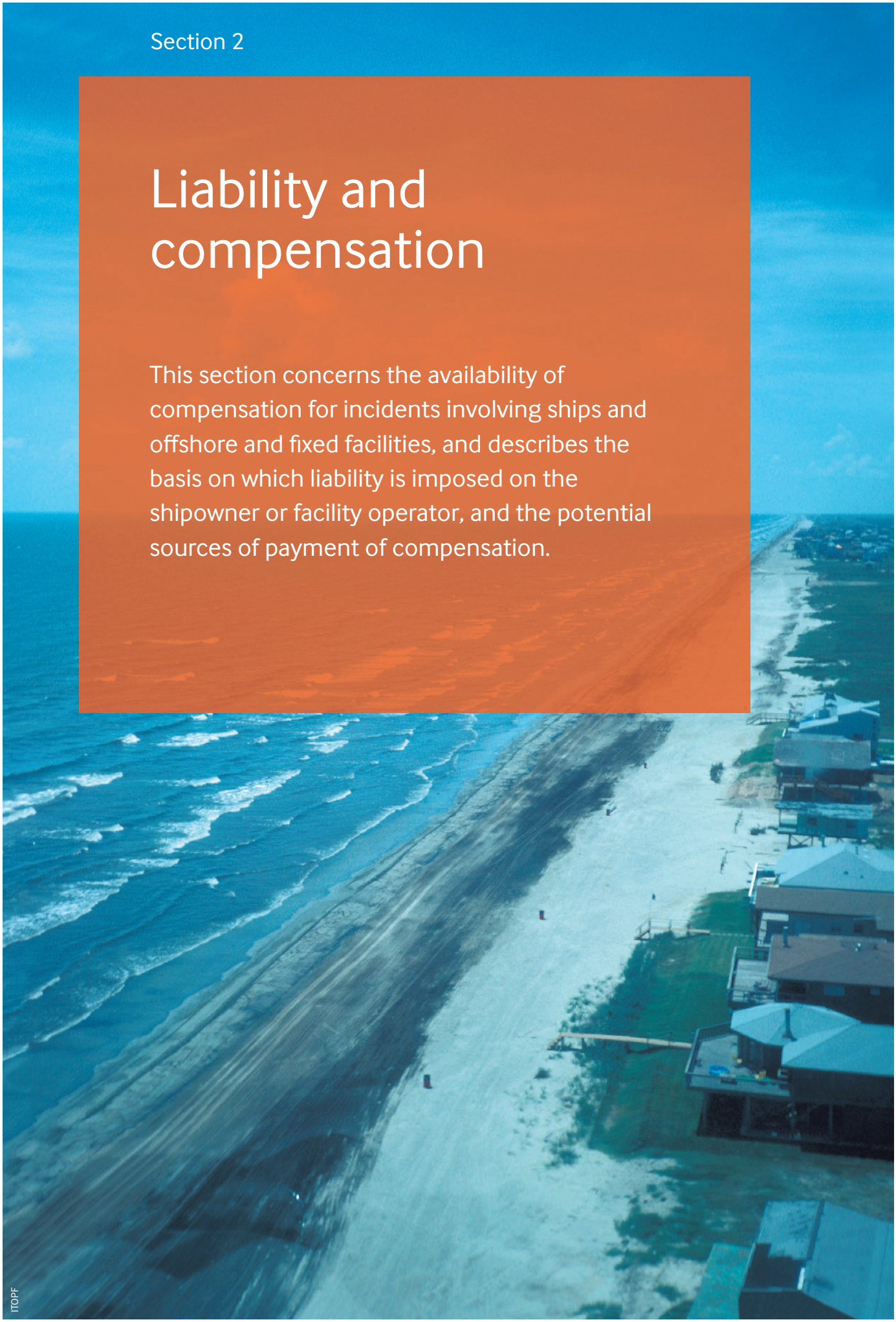
Potential contamination of ponds may be prevented by restricting the in-flow of seawater. However, the closure of mud ponds over prolonged periods can cause them to dry out, sometimes necessitating repair before salt production can be resumed.

*Agriculture*
Contamination of agriculture seldom occurs as a result of marine oil releases. Nevertheless, storms combined with high tides may produce oily spray which can have a negative impact on crops and farmed animals. Oil may strand on shores where animals are grazed, raising the potential for ingestion of contaminated seaweed and other food, necessitating alternative supplies of feed. Oil releases on navigable rivers and estuaries may contaminate crops irrigated by river water, for example rice paddies, with replanting possibly required.

Section 2

# Liability and compensation

This section concerns the availability of compensation for incidents involving ships and offshore and fixed facilities, and describes the basis on which liability is imposed on the shipowner or facility operator, and the potential sources of payment of compensation.



ITOPF

# Liability and compensation

The potential impacts described in the previous section may result in a financial loss to individuals, companies and other organizations. Together with the costs of a clean-up response and potential injury to the environment, this may result in one or more claims for compensation.

Liability for the costs of a pollution incident will generally be set out in civil law, as opposed to criminal law, in relevant national legislation. Liability and the availability of compensation can vary widely around the world.

Many countries have signed a number of international conventions relating to compensation for a release of oil from a ship. These conventions provide uniform rules and criteria relating to compensation claims for the owners of ships, and for those affected by an oil release in countries that have signed the appropriate convention and in which the oil release occurred. In contrast, releases of oil from sources other than ships are not the subject of international conventions.

As a consequence, the payment of compensation for a release, or the threat of a release, of oil is dependent upon two primary factors: the jurisdiction in which the incident or impact occurred and the source of the released oil. This section of the document concerns the availability of compensation for incidents involving ships and offshore and fixed facilities, and describes the basis on which liability is imposed on the shipowner or facility operator, and the potential sources of payment of compensation.

## The basis for compensation for shipping incidents

The insurer of the vessel's third-party liabilities, typically a Protection and Indemnity (P&I) Club, is usually the primary source of compensation for impacts caused by an incident involving oil pollution from a ship.

P&I Clubs provide cover on behalf of their shipowner and charterer members for a wide range of liabilities, including:

- Personal injury to crew, passengers and others on board
- Cargo loss and damage
- Oil pollution
- Wreck removal and dock damage

P&I Clubs also provide a wide range of services to their members on claims, legal issues and loss prevention, and often play a leading role in the management of casualties. Each P&I Club is controlled by its members through a board of directors or a committee elected from the membership.

P&I Clubs are non-profit mutual (i.e. cooperative) insurance associations enabling shipowners to share risk and the payment of claims. The 13 largest P&I Clubs provide cover for approximately 90% of the world's ocean-going tonnage and are members of the International Group of P&I Clubs (the International Group). The International Group coordinates the operation and regulation of the P&I Clubs' claim-sharing agreement (the Pooling Agreement) whereby the 13 member P&I Clubs reinsure each other and share qualifying claims in excess of a threshold, currently standing at USD 10 million. This claim-sharing agreement is underpinned by a market reinsurance programme arranged by the P&I Clubs within the International Group. In addition, the International Group provides a forum for member P&I Clubs to develop common policy and promote the interests of shipowners. The 13 member P&I Clubs are based in the UK, Scandinavia, Japan and the USA.

A further number of commercial vessels, mainly those operating in domestic markets, are insured for third-party liabilities by smaller P&I Clubs and also by commercial, fixed-premium insurers that operate in a similar way to providers of domestic insurance.

Government and publically operated vessels, including warships and other vessels on military duty or charter, usually operate outside established P&I and other commercial insurance.

For oil pollution incidents from commercially operated ships, the shipowner, via a P&I Club or other insurer, is liable up to an amount set by the relevant international convention or by national legislation. This availability of compensation for releases of oil from ships is dependent to a large extent upon:

- The type of ship: either a commercially operated tanker or a non-tanker
- The type of oil involved: either persistent or non-persistent
- Whether the country has signed one or more applicable international compensation conventions or operates a national compensation scheme

Claims for compensation should be made in the first instance to the shipowner or to the insurer of the vessel's third-party liabilities. Compensation to supplement that is available from the P&I Clubs and other insurers may be available from other sources, including international and domestic funds.

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The 1992 conventions apply to seagoing vessels and seaborne craft constructed or adapted to carry persistent oil in bulk as cargo.

### *Commercial tankers*

#### *International conventions*

The availability of compensation for the effects of releases of oil from commercially operated tankers has developed over recent decades. This first became a significant issue following the release of oil from *Torrey Canyon* in 1967, when the UK and French governments encountered difficulties in recovering costs incurred as a result of cleaning oil from beaches and other activities. In response to these difficulties, the shipping and oil industries established two voluntary compensation schemes in 1969 to ensure prompt payment following oil tanker incidents. At the same time, governments, through the International Maritime Organization (IMO), developed two international conventions for the same purpose: the Civil Liability and Fund Conventions. The success of the two international conventions led to the demise of the voluntary industry schemes in 1997. Further international conventions have been developed to cover other pollution scenarios.

These conventions follow a defined process of signature, ratification, acceptance, approval and accession through the IMO, before coming into force in a country and becoming binding upon that government and on activities in the waters of that country. To be applicable, an international convention must be implemented into national law, for example in the UK Merchant Shipping Act. Many countries are signatories to one or more of the conventions described below.

Although different in their application, the international conventions have many principles in common. For example, they apply primarily to releases of oil in the waters of countries that have signed that convention. For claimants, a primary advantage is that a claim for reimbursement of losses can be made under the conventions without the need to prove that the owner of the ship causing the pollution was at fault, and without a need, in most instances, to engage lawyers or to go to court. However, each convention has a time limit during which claims can be submitted, and restricts the types of claims that can be made.

- Persistent oil

  The Civil Liability and Fund Conventions provide a mechanism for compensation for a release or the threat of a release of persistent hydrocarbon mineral oil carried in tankers. A tanker is defined under the two conventions as a seagoing vessel or seaborne craft constructed or adapted to carry oil in bulk as cargo. The International Oil Pollution Compensation Funds have developed guidelines accepted widely, defining an oil as non-persistent if, at the time of shipment, at least 50% of the hydrocarbon fractions, by volume, distil at a temperature of 340°C (645°F) and at least 95% of the hydrocarbon fractions, by volume, distil at a temperature of 370°C (700°F) when tested in accordance with the American Society for Testing and Materials (ASTM) Method D86/78 or any subsequent revision thereof. This is consistent with the definition of persistent oil used by the US Coast Guard (USCG) and US Environmental Protection Agency (EPA).

  Generally, persistent oils contain a greater proportion of heavy fractions or high-boiling-point material. Persistent oils do not dissipate as quickly when released and, as a consequence, may potentially pose a greater threat to natural and economic resources. Oils which are normally classified as being persistent include crude oils, fuel oils, heavy diesel oil and lubricating oils. In contrast, non-persistent oils are composed of lighter hydrocarbon fractions that will usually dissipate rapidly through evaporation, and include gasoline, light diesel oil and kerosene. As a result, a release of a non-persistent oil will rarely require a response beyond monitoring, and clean-up methods tend to be limited. However, factors such as extreme cold temperatures or burial in sediments can lead to the longer-term persistence of oils that may normally be defined as non-persistent.

- Civil Liability Convention

  The International Convention on Civil Liability for Oil Pollution Damage (Civil Liability Convention or CLC)[1] provides a first level of compensation paid by the owner, or insurer, of the tanker which causes pollution damage as a result of a release, or the grave and imminent threat of a release, of persistent oil. The CLC applies to pollution damage in the territorial waters of a country in which the convention is in force, and to activities undertaken to respond to the pollution damage or to the threat of damage. The 1969 CLC came into force in 1975 and has been through a number of iterations with the latest 1992 CLC now in force in more than 140 countries.[2] However, in a number of countries, including Brazil, the original 1969 CLC remains solely in force.

Table 1: Tanker owner liability limits under the Civil Liability Convention

| CONVENTION[3] | LIMIT OF LIABILITY |
|---|---|
| 1969 CLC | 2,000 franc Poincaré (~USD 83) per gross tonne (GT) up to a maximum of 210 million francs Poincaré (~USD 8.5 million). (One franc Poincaré equalled the value of 65.5 milligrams of gold and has been largely replaced by Special Drawing Rights (SDR)). |
| 1992 CLC (limits after subsequent amendment) | Ship not exceeding 5,000 GT—4.5 million SDR (~USD 6.5 million);<br>Ship between 5,000 and 140, 000 GT—4.5 million SDR (~USD 6.5 million) plus 631 SDR (~USD 900) for each additional GT;<br>Ship of 140,000 GT or greater—89.77 million SDR (~USD 128 million). |

[1] The text of the convention is available from the publications section of the IOPC Funds website: www.iopcfunds.org

[2] See the website of the International Maritime Organization (www.imo.org) or the membership section of the IOPC Funds website (www.iopcfunds.org) for a list of countries.

[3] The version of the CLC relevant to each country is listed on the websites of the IMO and IOPC Funds (as above).

While applying usually to tankers carrying persistent oil as cargo, the 1992 CLC may apply to a release, or threat of a release, from an unladen tanker, for example to a release of bunker fuel oil used to power the vessel's engines, providing the tanker has residues of persistent cargo on-board at the time of the release.

As noted above, the CLC places strict liability on the tanker owner, meaning that compensation may be available even if the pollution was not due to any fault of the owner and in most instances without the need for a claimant to involve the courts. The tanker owner is exempt from this strict liability only in exceptional circumstances. At the same time, the CLC allows the tanker owner's liability to be limited to an amount of money dependent upon the size (gross tonnage) of the tanker. The limitation amount varies according to the version of the CLC in force in the affected country.

The 1992 CLC requires a tanker owner to maintain compulsory insurance to cover this liability, although this obligation does not apply to ships carrying less than 2,000 tonnes of persistent oil as cargo. Evidence of insurance is carried on board every tanker, and at all times, where the convention is in force and applicable, by means of a certificate issued by a convention country. The right to limit liability under the 1992 CLC does not apply if it is proved that the pollution damage resulted from the tanker owner's 'personal act or omission, committed with the intent to cause such damage, or recklessly and with knowledge that such damage would probably result' (1992 CLC Article V (2)).

The tanker owner is not liable under the 1992 CLC if the pollution damage was caused either by a natural disaster, by a third party intentionally, or as a result of the negligence of public authorities in maintaining lights or other navigational aids. The CLC does not apply if the pollution damage resulted from an act of war, hostilities, civil war or insurrection, or was caused by a release from a warship.

Claims for pollution damage under the 1992 CLC can be made only against the registered owner of the tanker concerned. This does not preclude victims from claiming compensation outside this convention from persons other than the owner. However, the convention prohibits claims against the servants or agents of the owner, members of the crew, the pilot, the charterer (including bareboat charterer), manager or operator of the ship, or any person carrying out salvage operations or preventive measures, unless the damage resulted from their personal act or omission etc. (CLC (Article III (4)). The tanker owner is entitled to take recourse action against third parties in accordance with national law, for example if the release of oil was not the fault of the tanker owner.

Claims under the CLC are allowed for a number of categories of pollution damage, as discussed later in this document. These include:

- Clean-up and preventive measures
- Property damage
- Economic loss, including in the fisheries, mariculture and fish processing sectors and the tourism sector
- Measures to prevent pure economic loss
- Environmental damage and post-spill studies

Claims must be made under the CLC within three years of the date of the damage or six years of the date of the incident, whichever is sooner. Compensation above the tanker-owners' liability limit may be available in a number of countries under the Fund Convention (see below) or from national funds.

- Fund Convention

  The International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage (Fund Convention)[4] provides a second level of compensation for a release, or the threat of a release, of persistent oil from a tanker, within the territory of a country in which the convention is in force. The Fund Convention came into force in 1978 and has been through a number of iterations, with the latest 1992 Fund Convention now in force in approximately 120[5] countries.

[4] The text of the convention is available from the publications section of the IOPC Funds website: www.iopcfunds.org

[5] See the websites of the International Maritime Organization (www.imo.org) or the IOPC Funds (www.iopcfunds.org) for a list of countries.

The Fund Convention established the International Oil Pollution Compensation Funds (IOPC Funds), financed by a levy on companies and other entities in countries that have signed the convention, that receive crude or fuel oil carried by sea. The IOPC Funds are an intergovernmental organization, administered by a secretariat based in London, and governed by two bodies: an assembly and an executive committee. The assembly is composed of representatives of the governments of all signatory countries, while the executive committee, composed of 15 Member States, is a subsidiary body elected by the Assembly, the main function of which is to approve claims. However, the executive committee normally gives the fund's director authority to approve and pay claims.

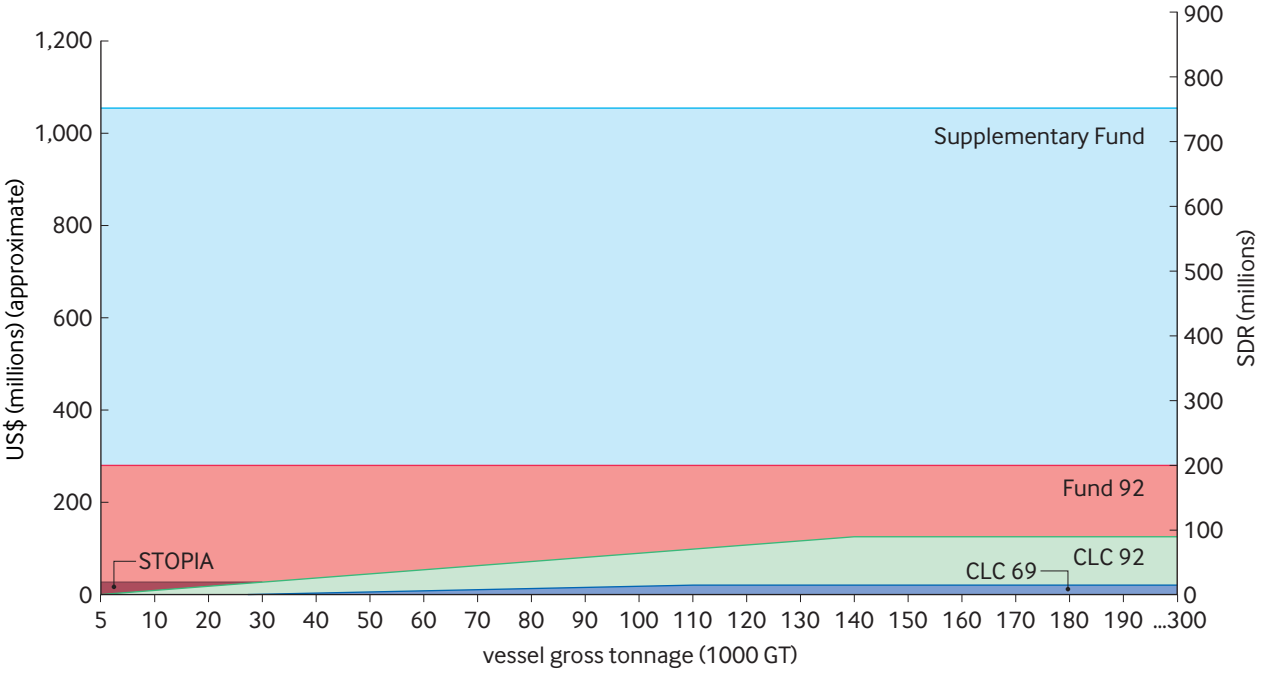
The maximum amount of compensation payable by the 1992 Fund Convention for any one incident is 203 million Special Drawing Rights (SDR), approximately USD 290 million, irrespective of the size of the ship. This maximum amount includes the compensation paid by the shipowner or insurer under the 1992 CLC.

Under the 1992 Fund Convention, compensation is made available by the 1992 Fund when claimants do not obtain full compensation under the 1992 CLC, such as when:

- The damage exceeds the limit of the tanker owner's liability under the 1992 CLC
- The tanker owner is not liable under the 1992 CLC because the damage was caused either by a natural disaster, by a third party intentionally, or as a result of the negligence of public authorities in maintaining lights or other navigational aids
- The tanker owner is financially incapable of meeting his obligations under the 1992 CLC in full, and the insurance is insufficient to pay valid compensation claims
- The tanker owner is unknown

As with the 1992 CLC, the 1992 Fund does not pay compensation if the pollution damage resulted from an act of war, hostilities, civil war or insurrection, was caused by a release from a warship, or if the release of oil cannot be proved to have originated from a tanker.

Figure 1: Compensation limits under the 1992 Civil Liability and Fund Conventions (including the Small Tanker Oil Pollution Indemnification Agreement—STOPIA)



The same categories of claims under the CLC are allowed under the Fund Convention. Similarly, claims must be made under the Fund Convention within three years of the date of the damage or six years of the date of the incident, whichever is sooner.

In 2003, a protocol was agreed to the 1992 Fund, to establish the Supplementary Fund, providing a third level of compensation for pollution damage in the ~30 countries[6] that are signatories to the 2003 Protocol. In those countries, the total amount of compensation payable under the 2003 Supplementary Fund for any one incident is 750 million SDR, approximately USD 1,070 million, including the amount payable under the 1992 Civil Liability and Fund Conventions. The Supplementary Fund is financed by a levy on receivers of crude and fuel oil carried by sea in countries that have signed the Supplementary Fund, and is administered on a basis similar to the 1992 Fund.

- STOPIA and TOPIA

  To allow equitable payment of compensation between tanker owners and oil receivers, two schemes have been agreed between the P&I Clubs that are members of the International Group of P&I Clubs.

  The Small Tanker Oil Pollution Indemnification Agreement (STOPIA 2006) applies to small tankers, insured by a P&I Club that is a member of the International Group, that cause pollution damage in a country in which the 1992 Fund Convention is in force. Under the terms of STOPIA 2006, the liability under the 1992 CLC for owners of tankers up to 29,548 gross tonnes (GT) is increased to approximately USD 28.5 million.

## CASE STUDY 3: COMPENSATION FOR OIL POLLUTION DAMAGE OFF TAEAN, REPUBLIC OF KOREA, 2007
### Addressing the impact of the *Hebei Spirit* incident

On 7 December 2007, the tanker *Hebei Spirit*, laden with 209,000 tonnes of four different Middle Eastern crude oils, was struck by a crane barge whilst at anchor off Taean, Republic of Korea. The barge broke free from its tow in poor weather, puncturing three port-side cargo tanks. Despite mitigating efforts by the crew of the *Hebei Spirit*, approximately 10,900 tonnes of Iranian Heavy, Upper Zakum and Kuwait Export crude oils were released to the sea.

The oil affected ~340 kilometres of coastline, both on the mainland and on numerous islands of three provinces, along the western coast of the Republic of Korea. A major shoreline clean-up operation was undertaken with 21 separate clean-up contractor companies and numerous province-level and city authorities hiring many local villagers as labourers (up to 10,000 people per day). Significant numbers from the army were also deployed together with a large volunteer involvement (up to 50,000 persons per day).

Seaweed cultivation facilities, particularly laver, and intertidal oyster cultivation areas were affected to various degrees by the oil. Many oyster farms and facilities required removal and replacement. Large-scale hatchery production facilities for laver, sea mustard, abalone, sea cucumber, and finfish were also affected.

Oiling of the beaches and coastal scenery of the Taean National Park affected the important tourist industry in this part of the Republic of Korea. While the clean-up work reduced the effect of the oil on this industry, losses were nevertheless recorded by tourism businesses.

Compensation for pollution damage as a result of the *Hebei Spirit* incident was paid by the shipowner's P&I Club under the 1992 Civil Liability Convention and by the International Oil Pollution Compensation Fund under the 1992 Fund Convention. The P&I Club and IOPC Funds established a joint claims office in Seoul to receive and process claims. Approximately 128,000 claims totalling more than KRW 2,700 billion (~USD 2,500 million) were submitted, with ~111,000 of these claims from the fisheries sector and more than 10,000 related to tourism. Information on the assessment of these claims is available on the IOPC Funds website: www.iopcfunds.org

[6] See the websites of the International Maritime Organization (www.imo.org) or the membership section of the IOPC Funds website (www.iopcfunds.org) for a list of countries.

A second agreement, known as the Tanker Oil Pollution Indemnification Agreement (TOPIA 2006), allows the owner of a tanker, insured by a P&I Club that is a member of the International Group, to reimburse the 2003 Supplementary Fund for 50% of the amounts paid in compensation by that Fund.

Both of these agreements affect the apportionment of compensation paid by the P&I Clubs and the IOPC Funds, but do not affect the process by which claims are dealt with.

- Hazardous and Noxious Substances (HNS) Convention

  Damage caused by non-persistent hydrocarbon mineral oils, as well as by many other substances, carried as cargo, will be covered by the International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances by Sea,[7] known as the HNS Convention. The 2010 iteration of the convention has been signed by five countries but is not yet in force.

  The 2010 HNS Convention will cover any damage caused by HNS in the territory of a country in which the convention is in force, up to 200 nautical miles, as well as damage caused by HNS carried on board ships registered in, or entitled to fly, the flag of a signatory country outside the territory of any State (country). Compensation will be available for pollution damage and damage caused by other risks, e.g. fire and explosion, for loss of life or personal injury on board or outside the ship carrying HNS, damage to property outside the ship, damage caused by contamination of the environment, loss of income in fishing, tourism and other economic sectors, and the costs of preventive measures.

  The convention will apply to the carriage of HNS by sea by any sea-going craft, including tankers and bulk carriers carrying bulk cargoes and container ships carrying packaged goods, but excluding ships owned or operated by a government (other exclusions may apply). Bulk cargoes can be solids, liquids including mineral hydrocarbon and vegetable oils, or liquefied gases. The number of substances included under the HNS Convention is referenced in various IMO conventions and codes and is very large; for example the International Maritime Dangerous Goods (IMDG) Code lists hundreds of materials which can be dangerous when shipped in packaged form. Some bulk solids such as coal and iron ore are excluded from the convention.

  The 2010 HNS Convention will not cover pollution damage caused by persistent oil, since such damage may be covered under the 1992 CLC and Fund Conventions. However, non-pollution damage caused by persistent oil, for example by fire or explosion, will be covered by the HNS Convention. The convention will not apply to damage caused by radioactive material.

  The availability of compensation under the HNS Convention will be modelled largely on the existing CLC and Fund Convention. For the first level, the shipowner will be liable strictly for the loss or damage, up to an amount dependent upon the size of the ship, and whether the HNS is in bulk or packaged form, to a maximum of approximately USD 164 million paid by the shipowner or insurer of the vessel. The shipowner will be exempt from liability under the 2010 HNS Convention on a similar basis as the 1992 CLC, with an additional exemption due to the failure of the shipper, or any other person, to provide information on the hazardous and noxious nature of the substance shipped. The 2010 HNS Convention does not impose liability on the owner of the HNS involved in the incident.

  An HNS Fund will provide a second level of additional compensation, up to approximately USD 355 million, when full compensation is not available from the shipowner. This figure includes the amount paid by the shipowner. The HNS Fund will be financed by companies and other entities which receive bulk HNS after sea transport in a signatory country. The HNS Fund will be administered by a Secretariat and overseen by an Assembly, under circumstances similar to the IOPC Funds.

[7] The text of the convention is available at www.hnsconvention.org

Once in force, claims under the HNS Convention should be submitted within three years of the damage or ten years of the date of the incident, whichever is sooner.

Until the convention is in force, the availability of compensation for incidents involving non-persistent oil cargo and other HNS cargo will vary widely internationally and will be dependent upon legislation established nationally.

- Bunkers Convention

  As noted above, the release, or threat of a release of bunker fuel oil from a tanker may be covered by the Civil Liability and Fund Conventions if the tanker has residues of a persistent oil cargo on-board at the time of an incident, in a country in which those conventions are in force. However, in other circumstances compensation and liability for the release of bunker fuel oil may be governed by the 2001 Bunkers Convention, for example if the tanker has a cargo of non-persistent oil on-board, or is clean, such as on a delivery voyage, at the time of the incident in a country in which the Bunkers Convention is in force.

  The 2001 Bunkers Convention applies also to a wide range of ships other than tankers, and is described in greater detail on pages 26 and 27, in the section on commercial non-tankers. However, it is worth noting that the Bunkers Convention places strict liability on the shipowner and allows a shipowner to limit liability according to separate applicable national or international regimes, such as under the Convention on Limitation of Liability for Maritime Claims (LLMC).

*National and regional legislation*

In incidents where an international convention does not apply, either because the country has not signed the applicable convention, or the convention is not in force, liability and the availability of compensation for those affected by a release of oil from a tanker will be dependent upon legislation established nationally. This legislation can be highly specific, such as the Oil Pollution Act of 1990 (OPA '90) in the USA, or be based on broader laws developed originally for other purposes. This means that compensation for releases of oil that are not covered by the international conventions is dealt with in different ways according to the applicable national law. For example, in some jurisdictions, claims for pure economic loss (i.e. loss that is not caused as a consequence of damage to property) may be inadmissible and therefore rejected by a court. Furthermore, an absence of strict liability in national law may require a potential claimant to prove fault on the part of the tanker owner.

An analysis of the relevant legislation on liability and compensation for releases of oil from tankers in every country is beyond the scope of this document. However, given its importance to the oil and shipping industries, OPA '90 is summarized below, as is similar important legislation in force in Canada and China. A summary of legislation relating specifically to liability and compensation for environmental damage in a number of countries is provided later in this document. Of particular note, the European Union Environmental Liability Directive (ELD) does not apply to incidents covered by the Civil Liability, Fund and Bunkers Conventions. However, an incident involving a substance not covered by these international conventions, such as a release of non-persistent oil may invoke the ELD.

- USA—Oil Pollution Act of 1990 and Oil Spill Liability Trust Fund

  The US government participated in negotiations on the Civil Liability and Fund Conventions and signed the 1984 Protocols to the conventions (although these never entered into force). However, the US senate was unable to ratify these conventions for a number of reasons including the pre-emption of US state laws and the perceived low liability limits. Instead, following the release of oil from *Exxon Valdez*, in March 1989 in Alaska, the US Congress passed the Oil Pollution Act of 1990[8] (OPA '90), which amended the existing Clean Water Act.

  OPA '90 includes provisions for liability and compensation of releases of oil from onshore and offshore facilities, ships and other watercraft. OPA '90 does not prevent individual US States from implementing more stringent laws for releases of oil and many have done so.

[8] The text of the Act is available at http://uscode.house.gov

However, this document is limited to an overview of OPA '90, which is a federal law.

OPA '90 applies to releases of oil of any kind and in any form, including petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil, but does not include any substance which is specifically listed or designated as a hazardous substance under the separate Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA). CERCLA applies to releases of hazardous substances other than oil from any type of vessel, and, as such, has limited applicability within this document.

Under OPA '90, the owner, operator or bareboat charterer (termed the responsible party) of a vessel from which oil is discharged, or which poses a substantial threat of discharge, into the waters of mainland USA, within the Exclusive Economic Zone, or its overseas territories and possessions, is liable strictly for removal costs and damages payable to compensate for the effects caused by the oil.

The first level of liability is placed on the responsible party and varies according to the type and size of the ship. The limits for tankers have changed a number of times since OPA '90 came into force, with liability now limited according to the construction of the hull of the tanker.

As an example, liability for a single-hull tanker of 150,000 GT would be limited currently to USD 555 million. For a double hull tanker of the same size, liability would be limited currently to USD 345 million.

No liability is placed on cargo owners under OPA '90. The owners of ships over 300 GT must obtain a Certificate of Financial Responsibility (COFR) as evidence of their financial capability to satisfy the maximum liability under OPA '90.

The right of a responsible party to limit liability under OPA '90 can be lost if the incident was caused by gross negligence or wilful misconduct, if any applicable federal safety, construction or operating regulation has been violated, and the failure or refusal to report the incident, to provide all reasonable cooperation and assistance requested by a responsible official (usually the USCG for a ship-source release of oil) in connection with removal activities, or to comply with an order under certain sections of other Acts.

The responsible party will not be liable under OPA'90 if the release was the result of an act of God, an act of war, or was caused by a third party not in any contractual relationship with the Responsible Party.

Table 2: Tank vessel liability limits under OPA '90, as effective from November 2019

| SOURCE TANK VESSEL | LIMIT OF LIABILITY |
|---|---|
| For an oil cargo tank vessel less than or equal to 3,000 GT with a single hull, including a single-hull tank vessel fitted with double sides only or a double bottom only. | The greater of USD 3,700 per GT or USD 7,478,800 |
| For a tank vessel less than or equal to 3,000 GT, other than a vessel referred to above. | The greater of USD 2,300 per GT or USD 4,985,900 |
| For an oil cargo tank vessel greater than 3,000 GT with a single-hull, including a single-hull tank vessel fitted with double sides only or a double bottom only. | The greater of USD 3,700 per GT or USD 27,422,200 |
| For a tank vessel greater than 3,000 GT, other than a vessel referred to above. | The greater of USD 2,300 per GT or USD 19,943,400 |

Removal costs comprise containment and removal of oil from the water and shorelines, as well as other activities required under the US National Contingency Plan to mitigate damage to public health or welfare, including fish, shellfish, wildlife, and public and private property, shorelines and beaches. A wide range of damages are covered specifically by OPA '90, including:

- Real or personal property damage (real property comprises land or buildings)
- Loss of profits or earning capacity
- Loss of subsistence use of natural resources
- Loss of government revenues from taxes, royalties, rents, fees, etc.
- Cost of increased public services
- Natural resource damage and the costs of assessing such damage (NRDA)

These damages are described in later sections of this document.

In certain circumstances claims may be submitted to the US Oil Spill Liability Trust Fund (OSLTF), for example when the responsible party denies a claim or fails to settle within 90 days, or when the first level of liability is insufficient to satisfy all admissible claims for compensation. In circumstances where the OSLTF pays claims that the responsible party has denied, it will later seek to recover the costs of settling those claims from the responsible party. The OSLTF will consider claims for oil removal costs, third-party damages and NRDA costs, although there are a number of conditions which have to be satisfied, as well as restrictions as to who is able to claim from the OSLTF. The maximum amount of compensation available from the OSLTF is USD 1,000 million per incident, funded by a per-barrel tax on imported and domestically produced oil. The OSLTF is administered by the US National Pollution Funds Center (NPFC), a department of the USCG.

Claims for removal costs must be made within six years after the date of completion of all removal actions for the incident. With the exception of claims for natural resource damage assessment, claims for damages must be submitted to the NPFC within three years of the date on which the damage, and its connection with the oil release, was reasonably discoverable.

- Canada—Ship-source Oil Pollution Fund

  The Canadian Ship-source Oil Pollution Fund (SOPF) was established in 1989 to pay claims for oil pollution damage or anticipated damage at any place in Canada, including the Canadian Exclusive Economic Zone (EEZ), caused by the discharge of oil from a ship. The SOPF pays established claims for releases of all types of oil from all classes of ships.

  Canada is a signatory to the 1992 Civil Liability and Fund Conventions and 2003 Supplementary Fund, as well as the 2001 Bunkers Convention, and claims for oil pollution from qualifying incidents would be paid under those conventions in the first instance. Claims for other incidents would be paid initially by the shipowner's insurer under domestic Canadian legislation. Therefore, for a tanker, the SOPF is available to provide additional compensation in the event that money from a vessel's insurer or the IOPC Funds is insufficient to meet all established claims for compensation for a release of oil in Canada.

  The SOPF is financed by a levy on oil imported into, or shipped from, a place in Canada in bulk as cargo on a ship and is overseen by an administrator. Since December 2018, the SOPF has no limit of liability for an incident.

- China—Oil Pollution Compensation Fund

  China is a signatory[9] to the 1992 Civil Liability and 2001 Bunkers Conventions and in most instances the vessel's insurer would provide compensation. Claims may be submitted to the China Oil Pollution Compensation Fund (COPCF) if: damages from an incident exceed the shipowner's liability under these conventions; the shipowner is exempt from liability; the shipowner is unable to pay; or the damage was caused by an unidentifiable ship.

[9] China is Party to the 1992 Fund Convention in respect of the Hong Kong Special Administrative Region only.

The COPCF will provide compensation for a release, or the threat of a release, of persistent or non-persistent oil cargo, fuel oil and oil residues for claims for:

- Emergency response costs incurred for the purpose of mitigating the oil pollution damage
- Costs incurred for controlling or eliminating the pollution
- Direct economic loss caused to fisheries and tourism industries
- Costs of measures that have already been taken to resume the marine ecosystem and natural fishery resources, etc.
- Costs incurred for surveillance and monitoring
- Other costs, as approved by the Chinese State Council

The COPCF is financed by a levy on persistent oil transported by sea and discharged in China, and is administered by a Compensation Fund Management Committee, comprising the Chinese Ministry of Transport, Ministry of Defence and other bodies.

*Commercial non-tankers*

The availability of compensation for response costs and for the effects of oil caused as a result of a release from a non-tanker has developed more recently than for tankers, primarily because releases of oil from vessels other than tankers were perceived to be less problematic and because the volume of oil carried by non-tankers as bunker fuel has increased with vessel size. Ratification of the 2001 Bunkers Convention has allowed signatory countries to put in place regulations that provide benefits similar to the 1992 Civil Liability Convention for tankers. Countries that are not a signatory to this convention rely instead on legislation established nationally. As with the situation regarding tankers, this national legislation can be highly specific, such as the Oil Pollution Act of 1990 (OPA '90) in the USA, whereas other countries may rely on broader laws developed originally for other purposes.

*International conventions*

- Bunkers Convention

  The success of the Civil Liability and Fund Conventions to provide prompt payment of compensation for releases of persistent oil from tankers, led to the development of the International Convention on Civil Liability for Bunker Oil Pollution Damage 2001[10] (Bunkers Convention) applicable to a wide range of vessels. The convention came into force in 2008 and is currently in force in more that 100 countries.[11]

Compensation for the effects of oil spills from non-tankers is a more recent development than that for spills from tanker vessels.

Federico Rostagno/Shutterstock.com

[10] The text of the convention is available at www.gov.uk

[11] See the website of the International Maritime Organization (www.imo.org) for a list of countries.

The convention applies to pollution damage caused by any hydrocarbon mineral oil used for the operation or propulsion of any type of sea-going vessel in the territory of a signatory country, as well as to response activities undertaken anywhere to protect a signatory country. As such, the convention applies to fuel and lubricating oils used in a wide range of vessels, including fishing vessels, tugs, ferries, container ships, bulk carriers and tankers. However, the convention does not apply to a release of bunker fuel from a tanker covered by the Civil Liability Convention (CLC) i.e. with a persistent oil cargo, or traces of a persistent oil cargo, on-board.

The Bunkers Convention is a single-tier compensation regime modelled on the CLC. As with the CLC, a key requirement of the Bunkers Convention is the need for the registered owner of a vessel (over 1,000 GT for the Bunkers Convention) to maintain compulsory insurance to cover liability, evidenced by a blue card and a convention certificate. The limit of liability of the shipowner is determined by separate applicable national legislation or international limitation regime, such as the Convention on Limitation of Liability for Maritime Claims (LLMC—see below). By way of example, for a container ship of 80,000 GT in a country that is a signatory to the Bunkers Convention and the LLMC 1996, approximately USD 56 million would be available, paid by the vessel's insurer.

The Bunkers Convention covers similar claims as the CLC i.e. for the costs of preventive measures (clean-up response) and for pollution damage. In particular, the Bunkers Convention states that compensation for damage to the environment is restricted to loss of profit from the damage and the costs of reasonable reinstatement work. The requirement for direct action under the convention allows a claim for compensation to be brought directly against an insurer.

In assessing claims under the Bunkers Convention, insurers of vessels refer to the IOPC Funds claims manual for guidance on admissibility criteria, on the basis that the signatory countries will often be party to the CLC also and will seek consistency in claims, irrespective of the type of ship from which the oil has been released.

Claims must be made under the Bunkers Convention within three years of the date of the damage or six years of the date of the incident, whichever is sooner.

- Convention on Limitation of Liability for Maritime Claims (LLMC)

  As noted above, liability under the Bunkers Convention can be limited according to the Convention on Limitation of Liability for Maritime Claims (LLMC). The sole purpose of LLMC is to set limitation amounts for shipowners, and therefore the convention does not establish liability or a means of providing compensation. The 1976 LLMC came into force in 1986 and has undergone a number of revisions. Currently, the 1996 version is in force in 52 countries, with the earlier 1976 version solely in force in a further 22 countries. The LLMC allows the owner of a sea-going ship to establish limitation for a wide range of claims, including loss of life, personal injury, damage to property, wreck removal and cargo removal. Liability is limited to an amount dependent on the size of the ship. For example, for a ship of 80,000 GT, for property claims, i.e. excluding loss of life and personal injury, the limitation amount is approximately USD 16 million under the 1976 version, and approximately USD 56 million under the 1996 version, as amended in 2012.

  The LLMC does not apply to claims for oil pollution damage under the Civil Liability Convention.

- Hazardous and Noxious Substances Convention

  When in force, the HNS Convention, described in the above section on tankers, will apply to cargoes carried on non-tankers, notably to some bulk carriers and container ships.

*National and regional legislation*

As with the situation regarding commercial tankers, in incidents where an international convention does not apply, either because the country has not signed the applicable convention or the convention is not in force, the availability of compensation for those affected by a release of oil from a non-tanker will be dependent upon legislation established nationally. In the absence of strict liability, a potential claimant may be required to prove fault on the part of the non-tanker owner.

Again, an analysis of the relevant legislation on liability and compensation for non-tanker releases in every country is beyond the scope of this document. However, for releases of oil in the USA from non-tankers, the broad outline of OPA'90 provided under the previous section for tankers is similarly applicable. The limit of liability of the Responsible Party effective from 21 December 2015 for a non-tanker under OPA '90 is the greater of USD 1,200 per gross tonne or USD 997,100 irrespective of the size of the vessel. The range of damages covered by OPA '90 and described previously, apply also to non-tanker vessel incidents.

*When an incident occurs involving a ship*

Responsibility for responding to a release of oil varies globally. In some countries, the response will be led by the government, with the involvement of a shipowner restricted potentially to crew and salvage matters, or providing technical support and paying compensation ultimately through the relevant insurer. In some other countries, a shipowner-led response is required with government agencies retaining the authority to direct operations and intervene in defined circumstances. In other countries, a response would be undertaken by a combination of the government and the shipowner.

The resources that would be necessary to enable a response in a particular country may be provided by government agencies, private contractors and other sources, or by a combination of sources.

When an incident occurs, the ship's insurer, or other body paying compensation, may send a representative to the site, for example from the insurer's local correspondent. Local surveying companies may be engaged to record the extent of the pollution and response, and to assist in determining losses. In jurisdictions requiring a shipowner-led response, other organisations such as spill management teams may be mobilized to act as a liaison with government agencies and with potential claimants. Expert organizations such as ITOPF[12] may also be appointed to provide advice on appropriate clean-up techniques and environmental restoration measures, and on measures to mitigate economic losses. Guidance may also be provided on the admissibility of potential claims, the types of evidence required to support a claim and how a claim should be formulated and submitted. Where a loss is anticipated as a result of an oil release, notification should be made at the earliest opportunity to the liable party, thereby allowing such advice to be provided in a timely manner.

Within countries that are signatory to the Fund Convention, an agreement exists between the P&I Clubs within the International Group and the IOPC Funds to share information during an incident, allowing claims to be coordinated between the two organizations. In significant tanker incidents, a claims office may be established jointly by the vessel's P&I Club and the IOPC Funds, usually sited locally to the area of the incident to receive and process claims. Contact details for a claims office would usually be advertised in the local media. In addition, the IOPC Funds can become involved in an incident when the tanker owner is unable to pay or where the shipowner is unknown. In such instances, claims would be submitted directly to the IOPC Funds secretariat.

## The basis for compensation for releases of oil from fixed and offshore sources

A number of governments bordering the North Sea, Baltic Sea and North Atlantic Ocean negotiated the 1977 Convention on Civil Liability for Oil Pollution Damage resulting from Exploration for and Exploitation of Seabed Mineral Resources (known as CLEE 1977). However, the convention was ultimately unsuccessful and has not entered into force. Consequently, compensation for response costs and damage arising as a result of a release of oil from a fixed or offshore source is governed by other legislation established nationally or regionally.

Again, a review of applicable legislation for each country is beyond the scope of this document. Nevertheless, many jurisdictions impose strict liability for the costs of a clean-up response and the effects of oil arising as a result of a release from a fixed or offshore facility. In some instances this liability can be unlimited for the costs of the clean-up response and/or for the losses or damages arising from the effects of the release. The applicability of OPA '90 to fixed and offshore facilities is summarized below. A summary of legislation relating specifically to liability and compensation for environmental damage in a number of countries is provided on pages 42–44.

[12] International Tanker Owners Pollution Federation: www.itopf.org

Offshore operators can purchase insurance cover for specified amounts for oil pollution in the commercial market. However, many of the larger operators are self-insured, with compensation paid directly by the operator causing the pollution. As such, the operator of the facility would usually be the first point of contact for a potential claimant. Within Northwest Europe, the Offshore Pollution Liability Association (OPOL), a scheme supported by offshore operators active in the area, provides an additional source of funds in certain circumstances.

- Offshore Pollution Liability Agreement (OPOL)

  Within the waters of Northern Europe, if an operator of a fixed or offshore facility is unable to meet its liabilities, a claimant may be able to apply to the administrators of the Offshore Pollution Liability Agreement (OPOL) for compensation. OPOL came into effect in 1975, initially as an interim measure to provide for a strict liability regime while CLEE 1977 was being negotiated. Countries currently covered by OPOL include the UK, Denmark, Germany, France, Greenland, Ireland, The Netherlands, Norway, the Isle of Man and the Faroe Islands.

  OPOL is a voluntary agreement under which participating companies accept strict liability (with some exceptions), up to a maximum of USD 250 million per incident, comprising USD 125 million to cover claims for pollution damage and USD 125 million for clean-up (remedial measures) claims. Claims for damage exclude damage caused to the facility. As part of the agreement, operators must provide evidence of their ability to pay claims. However, if an operator fails to provide compensation to claimants, under OPOL the remaining operator parties in OPOL who have provided evidence of their financial responsibility will pay claims proportionally up to the maximum liability. Although voluntary, some countries require operators to participate in OPOL as part of licencing requirements.

  OPOL covers not only fixed installations and pipelines but also mobile offshore drilling units (MODU), production facilities, such as floating production storage and offloading facilities (FPSOs) and floating storage units (FSUs) while being used in the production process, as well as when temporarily removed from an operational site. However, OPOL does not cover abandoned wells or facilities concerned with natural gas.

  Under OPOL, reasonable, quantifiable and justifiable claims may be submitted for:

  - Clean up operations on shore or at sea
  - Property damage
  - Disposal costs of collected material
  - Other losses which must be quantifiable and which must result directly from the contamination itself

  Claimants are required to submit claims within one year of the date of the incident, to the relevant operator who is obliged to handle and pay the claim directly. In the event of a default by the operator, the claimant must advise OPOL immediately for the claim to be administered by OPOL.

  OPOL does not limit the liability of an operator under national law and claimants can pursue losses exceeding the maximum recoverable under OPOL through the courts.

- USA—Oil Pollution Act of 1990

  The broad outline of OPA '90 provided under the previous section for tankers is applicable equally to a release of oil from a facility, defined under OPA '90 as 'any structure, group of structures, equipment, or device (other than a vessel) which is used for one or more of the following purposes: exploring for, drilling for, producing, storing, handling, transferring, processing or transporting oil. This term includes any motor vehicle, rolling stock or pipeline used for one or more of these purposes'.

  Responsible Parties for an offshore facility can include the lessee, owner, holder of operating rights, the designated operator or agent of the lessee. The limit of liability, as effective from 21 December 2015, for a release from any US deepwater port, including for any component pipelines, other than the Louisiana Offshore Oil Port (LOOP), is approximately USD 672.5 million. This same limit applies also to onshore facilities. For LOOP, the limit is approximately USD 102 million.

  The range of damages covered by OPA '90 as described previously and below, also apply to releases of oil from facilities.

*When an incident occurs involving a fixed or offshore source*

As with a release of oil from a ship, the responsibility for responding to the release of oil from a fixed or offshore facility varies globally. In some jurisdictions, the response will be mounted by a government agency, and in others the facility operator would be expected to lead the response, with activities overseen by a government agency. In some other countries, the response would be undertaken by a combination of the government and the facility operator.

The resources that would be necessary to enable a response in a country may be provided by government agencies, private contractors and other sources, or by a combination of sources.

Many offshore operators have developed teams of personnel to respond to releases of oil, to arrive on-site to liaise with government bodies, response contractors and other parties. A number of specialist companies are available to support offshore operators with claims handling, to liaise with potential claimants, to review and assess claims and to distribute payments accordingly. Such companies may establish offices at a location appropriate to the incident, and may advertise the availability of compensation in local media and through national government agencies.

Section 3

# Calculating losses and preparing a claim

Calculating, preparing and submitting a claim for compensation following an oil release is a complex process that will be informed by the legal regime under which the claim is submitted. This section summarizes the various compensation regimes and provides an overview of the criteria applicable to each body.

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# Calculating losses and preparing a claim

The process and information necessary to prepare and calculate a claim will be dependent upon the legal regime under which the claim is submitted. Most notably, the provisions of strict liability under the international conventions and some national regimes preclude the need to prove fault on the part of the ship or facility owner or operator. In other regimes where fault must be proven, the process of submitting a claim may require additional evidence necessary to establish liability.

Detailed information on the preparation and submission of claims can be found in a number of claims manuals appropriate to individual compensation regimes. For example, the IOPC Funds Claims Manual, the NPFC Claimant's Guide, and the OPOL Guidelines for Claimants, all describe claims admissible within the jurisdiction of those bodies. This document provides only a summary of the criteria applicable to each body and does not replace the guidance given in those claims manuals. For claims submitted under other regimes, much of the information required to support a claim will be similar to that stated in these referenced claims manuals but will have specific differences. As a result, reference should be made to the requirements specific to the appropriate compensation regime.

ITOPF

Natural environments, as well as tourism, can be adversely affected by an oil spill.

Irrespective of the expected source of compensation, the procedure for preparing, submitting and dealing with claims will usually follow a series of steps from the moment that costs or losses are alleged to have occurred. The claimant has a responsibility to provide adequate evidence of the claimed expenditure or loss, and further information and evidence may be requested during the claim assessment process. The assessment may therefore take the form of a number of iterative exchanges between the claimant and those responsible for settling the claim, until the process has been completed. In many cases, agreement on the amount of compensation to be paid may be reached on an amicable basis. In some instances a claimant may be required to issue a lawsuit in an appropriate court of law to conclude a claim. However, the aim of most compensation schemes is to provide money to claimants quickly, without the need to involve lawyers or the courts.

This section of the document focuses on the procedures by which losses incurred as a result of economic damage can be calculated, and the type of information required to support a claim. The procedures for calculating costs for environmental damage are summarized. Mention is made also of the procedures for obtaining compensation for costs incurred as a result of a clean-up response.

Irrespective of the type of claim, the quality of the documentation and other information and evidence required to support a claim depends to a large extent upon the measures taken to record and preserve this information and evidence at the time the expenditure or loss is incurred. As time passes and unless records are meticulous, the availability of information to support claims, verify losses, and answer questions is likely to diminish. Settlement of a claim may take some time, and if key personnel are no longer available to answer queries during this period, further information will be available only within those records.

Similarly, unless evidence is preserved correctly, substantiation of a subsequent claim may not be possible, for example if biological samples are not preserved and recorded properly, evidence of damage to mariculture could be compromised.

The aim of compensation is to place the injured party in a position as close as possible to that prior to the incident. To enable this, claims may be submitted for a number of categories of costs and losses:

- **Response:** termed clean-up and preventive measures under the international conventions and removal costs under OPA '90. This type of claim includes the costs of response operations at sea, work to protect sensitive areas from contamination, and the clean-up of affected shorelines and wildlife. OPA '90 has an additional category of claim for the cost of increased public services that would be categorized as preventive measures under the international conventions.
- **Property damage:** includes the costs to clean, repair or replace oiled property. Under OPA '90 this is termed real or personal property damages.
- **Economic loss:** includes losses incurred as a result of released oil, either as a consequence of contaminated property or other reasons. Under OPA '90, relevant claims are for loss of profits and earning capacity as well as loss of subsistence use of natural resources.
- **Environmental damage:** work undertaken to monitor and accelerate the natural recovery of the damaged area may be admissible under the international conventions. Under OPA '90 claims for natural resource damages, and under the European Liability Directive for compensatory restoration, also cover the loss of use of such resources.

Under OPA '90, costs incurred by the owner or operator of the ship or facility from which the oil was released may be able to claim for removal costs and damages under specific conditions. Such costs are allowable under the international conventions under broader criteria.

Under the HNS Convention, claims for death and personal injury are allowed, but are not considered further here.

For all claims, a minimum set of supporting information is required, including:

- The name, address and contact details of the claimant
- Details of the release of oil against which the claim is being made, including time, date and geographic location, and the associated ship or facility owner or operator
- The type of claim being submitted, the amount claimed, an explanation of how the costs or losses were incurred, and the dates of the period of the claim

Other general information may be necessary according to the requirements of the body paying compensation. Claims submitted under each category will require further information and the preparation of claims for the various categories are considered briefly below.

For claims under the OPOL, and in addition to the general information indicated above, the OPOL Guidelines for Claimants require only that claimants should provide all information, documents and testimony as are reasonably required in connection with the investigation of any claim.

## Response

A wide variety of organizations can be involved in a response in addition to government agencies, for example, salvage companies, oil industry, response and waste contractors, wildlife organizations etc. In addition to utilizing owned resources, each organization may incur costs to purchase or contract goods and services. The resulting evidence of expenditure can include tender documents, hire agreements, contracts, invoices, receipts and many other individual documents.

For many releases of oil, significant costs may be incurred in the initial, emergency phase of a response as a result of deploying resources to protect sensitive areas and to combat or recover the oil. Consequently, it is important that a methodical, orderly procedure for cataloguing and filing associated records is established as a priority, as an integral part of an incident management system.


ITOPF


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Significant costs may be incurred during the initial phases of a response, in relation to the use of specialized equipment such as booms (left) or improvised materials (right).

Costs for many items used in a response will be calculated as the sum of the period worked and the rate for that period, for example an aircraft used for surveillance for a number of hours or a worker employed on a beach over several days. Such costs are best entered and submitted in electronic format, preferably using spreadsheets. In addition to itemizing costs, a claim should include as much information as possible to explain the reason for the work, such as records of decision meetings, and records of the activities undertaken to recover and clean-up the oil, for example vessel logs, personnel time sheets and worksite reports.

Companies and other organizations may be contracted in to provide a pollution response service to a national authority, to the facility operator, to the shipowner, etc. As such, payment would be made to the contractor under the terms of the contract. The national authority, facility operator, shipowner or other contractee may then seek to recover this expenditure and may subsequently submit a claim including the costs of the contractor to a body paying compensation, under the applicable compensation regime. The claim should include all the supporting documentation necessary to allow a clear understanding of the work done and the basis on which the costs were calculated.

### *International conventions*

The IOPC Funds *Claims Manual*, and accompanying IOPC Funds *Example Claim Form*,[13] provide comprehensive guidelines on the calculation and submission of claims under the Fund Convention. For continuity, these guidelines are applied generally to incidents under the Civil Liability Convention and to other international conventions relating to oil pollution from ships. The admissibility and payment of claims is decided by the body paying compensation, and ultimately by the competent court if disputes arise that cannot be resolved amicably.

Under the international conventions, the following categories of claims for costs of clean-up and preventive measures are accepted, to:

- Mobilize clean-up equipment, personnel and other response resources
- Monitor the oil release
- Combat oil at sea
- Protect resources vulnerable to oil
- Clean shorelines/coastal installations
- Provide local reception facilities for treating contaminated wildlife
- Dispose of oil/oily waste
- Recover oil from wrecks

[13] Available from the publications section of the IOPC Funds website: www.iopcfunds.org

Under the international conventions, the costs claimed should be technically reasonable and are assessed against objective criteria. As such, costs would not be accepted if the activity was foreseen to be ineffective, for example using dispersant on inappropriate oils, deploying booms in fast currents where containment of oil would not be possible, or collecting unnecessarily large amounts of waste. Furthermore, a claim should be based on the actual costs incurred and should not result in an excessive level of income or profit to the claimant. Costs that are considered not to be reasonable may not be compensated under the international conventions.

The type of information required to support claims for costs arising from the above categories is described in the IOPC Funds *Example Claim Form*, and includes:

- Delineation of the area affected, describing the extent of the pollution and identifying those areas most heavily contaminated
- Laboratory analysis and/or other evidence linking the oil pollution with the tanker (or other type of ship if applicable) involved in the incident (such as chemical analysis of oil samples, relevant wind, tide and current data, observation and plotting of floating oil movements)
- Summary of events, including a description of the work carried out and an explanation of why the various working methods were selected
- Dates on which work was carried out
- Labour costs and relevant supporting information (invoices, receipts, worksheets and wage records, log books, deck books, etc.)
- Travel, accommodation and living costs for response personnel
- Equipment costs, and relevant supporting information
- The cost of replacing equipment damaged beyond reasonable repair
- Consumable materials costs and relevant information on their use
- Any remaining value at the end of the operations of equipment and materials purchased specifically for use in the incident
- Transport costs for personnel, equipment, waste material, etc. and relevant supporting information
- The cost of temporary storage (if applicable), and of final disposal of recovered oil and oily material

The above is only a small section of the information required to support claims for the costs of clean-up and preventive measures, as described in the IOPC Funds *Claims Manual, Guidelines for presenting claims for clean up and preventive measures* and *Example Claim Form;* wider reference should be made to this information when preparing and submitting a claim under the international conventions.

### *USA—Oil Pollution Act of 1990*

With a few exceptions, under OPA '90, claims must be submitted initially to the party identified as responsible under the Act, i.e. either a ship or facility owner or operator. Guidelines for submitting claims to the responsible party would be established and advertised by the Responsible Party following an incident. Claims may be submitted to the USCG National Pollution Funds Centre (NPFC) under specific circumstances specified in USCG regulations and described in the *Claimant's Guide*[14] produced by the NPFC. This *Claimant's Guide* also includes eligibility and submission criteria for claims for removal costs under OPA '90 to the NPFC. The guidelines established by the Responsible Party may differ therefore from the NPFC guidelines and should be referred to when appropriate.

The NPFC allows for reasonable removal costs to prevent, minimize or mitigate oil pollution, and the Claimant's Guidelines list specific information required to support a claim for such removal costs including:

- Evidence that necessary actions were taken to prevent or reduce the effects of the release
- Removal costs resulted from these actions
- Actions taken were reasonable and consistent with the US National Contingency Plan
- Evidence of a release, such as a Federal On-Scene Commander (FOSC) report, confirmation of EPA or USCG notification, newspaper reports describing the release, or witness statements
- Detailed description of actions
- Dates on which work was performed
- Analysis of the substance released
- map and pictures of the area, damage and release
- Receipts, invoices or similar records with a description of the work done
- How rates were determined and any comparison of rates

[14] The guide is available at www.uscg.mil

- Daily records of personnel costs including details on labour rates, hours, travel and transportation
- Daily records of equipment costs including description and use
- Signed disposal manifests and proof of payment for disposal
- Payroll verification of hourly rate at the time of the release
- Verification of standard equipment rates for equipment used

As a separate claim category, a US state or other government agency may claim for costs under the category of increased public services as a result of a release or associated response. The information necessary to support such a claim is similar to a claim for removal costs, together with information to justify that the service was necessary, due to fire, health or safety hazards and in addition to services provided normally. Such additional information may include:

- Daily reports on the activities of the government personnel and equipment involved
- Payroll verification of the government hourly rate at the time
- Verification of the standard government equipment rates for any equipment claimed
- Signed and dated records of the release, including hourly rates for labour and equipment
- Certification that rates used reflected actual costs incurred and did not include punitive damages or fees

The above is a summary of the requirements of the NPFC and reference should be made to the detailed NPFC guidelines when preparing and submitting a claim.

## Property damage

Claims for property damage are based primarily upon the costs of cleaning, repair or replacement of property contaminated by oil or by the associated response activities. Items affected may include:

- The hulls of commercial ships, fishing vessels and pleasure craft
- Fishing gear, such as nets and traps
- Mariculture structures, such as fish farms, mussel rafts and floats and oyster trestles
- Sea walls, sea defences, and port, harbour, marina and terminal infrastructure
- Tourism facilities such as beach furniture and sports equipment
- The intakes, machinery and equipment of facilities that abstract seawater, e.g. aquaria, power stations and desalination plants
- Roads, paths, embankments and jetties used for access by response workers and vehicles

Claims may comprise the costs of workers, equipment and materials necessary for the cleaning work and the costs of disposal of oily water and/or debris. The level of information required would be the same as a claim for response activities. Where property is replaced, the cost of the replacement item(s) should be supported clearly. Under the international conventions, account is taken of the condition of the property prior to the incident, including normal repair schedules and any betterment. Table 3 (below) provides an example calculation of economic loss, courtesy of the IOPC Funds.

Table 3: Example calculation of economic loss under the 1992 Fund Convention

| | | |
|---|---|---|
| Cost of personnel used | + | GBP 750 |
| Cost of equipment purchased | + | GBP 399 |
| Residual value of equipment purchased | – | GBP 133 |
| Cost of equipment rented | + | GBP 589 |
| Other costs (slipway charges) | + | GBP 500 |
| Total claim | = | GBP 2,105 |

IOPC Funds

In this example residual value is determined as the amortized value of replacement durable items, such as mooring ropes and floats, for the period in use prior to the release of the oil. Thus, replacement of buoys that had been used for two years out of a projected three-year life would result in a claim for one third of the replacement costs being accepted.

Photographs of the property before and after restoration or replacement should be provided in support of a claim. However, for many property damage claims, an appraisal survey, usually undertaken jointly with representatives of the body paying compensation, will be necessary prior to the commencement of work to restore the property. Surveys are necessary to establish the link between the property damage and the oil release incident, to corroborate the level of contamination or other damage claimed and to advise on the appropriate work to be undertaken.

The information required to support a claim to the IOPC Funds would include:

- A brief description of the property damaged and an explanation of how damage occurred, accompanied by photographs
- Details of the owner of the damaged property and the nature of the relationship between the claimant and the property
- A description of repairs or cleaning operations performed on the property, or cost of replacement
- Date(s) on which the repair or cleaning of goods took place, or the date on which a replacement was purchased
- Details of normal repair or replacement schedules for the property
- The number and roles of personnel employed, including: days/hours worked and the daily/hourly rate; travel and accommodation expenses for personnel involved in repair or cleaning; and a summary of costs of food, personal protective equipment, communications, etc. for response personnel

Under OPA '90, equivalent claims are for real or personal property damages (real property comprises land or buildings) for the cost of restoring the property to the condition prior to oiling. To support a claim to the NPFC, information would include:

- The ownership or leasehold interest in the property
- Evidence that the property was damaged or destroyed
- The value of the property both before and after the release
- Cost of repair or replacement of the property
- Evidence that the property was not usable because of the oil release
- Losses incurred from the damage to the property
- Any expenses or money lost while the property was unavailable because of the effects of the oil

Again, the above is a summary of the requirements of the IOPC Funds and NPFC, and reference should be made to the relevant guidelines when preparing and submitting a claim.

## Economic losses

Contamination of fishing vessels, fishing gear, mariculture facilities, or tourism or other economic assets may affect their use for a period after oiling. Income lost while the oiled items are cleaned or replaced may form the basis of a claim for consequential economic loss, i.e. a loss caused as a consequence of property damage. In addition to the documentation required to support the property damage, evidence of the ensuing loss of income will be required, along with baseline data necessary to determine the loss that can be attributed to the oil release.

Claims for pure economic loss arise without damage to property, for example if a fishing fleet is unable to depart port because of a fisheries closure that results in reduced catch, or if a beachfront restaurant or hotel suffers loss of business due to a beach closure. Media reports of an oil release may also result in a loss of market confidence, which might deter tourists from visiting a coastal area, or deter retailers or the public from purchasing seafood perceived to be contaminated by oil. Pure economic losses can be seen on a balance sheet only, rather than as a consequence of damage to property.

For many such claims, the most important supporting documentation will therefore be copies of company accounts or other financial statements. Although accepted under the international compensation regimes, in some national jurisdictions claims for pure economic loss are inadmissible.

*International conventions*

Clear guidelines for calculating economic losses are available from the IOPC Funds with separate requirements for fisheries and tourism claims.

Claims for economic loss qualify for compensation under the international conventions if a sufficiently close link of causation exists between the contamination and the loss or damage. The IOPC Funds guidelines state that the claimant must be able to show that a financial loss has been suffered due to the pollution, that the loss has a direct link to the contamination due to oil and that the loss can be measured financially. The IOPC Funds would consider a number of factors, including:

- The geographic proximity of the claimant's business activity to the contaminated area
- The degree to which a claimant's business is economically dependent on an affected resource (e.g. a polluted fishing ground or, for restaurants or accommodations, tourists)
- The extent to which a claimant had alternative sources of supply or business opportunities
- The extent to which a claimant's business forms an integral part of the economic activity within the area affected by the release of oil

A claim for economic loss under the international conventions should be calculated to return the business to the position before the oil release occurred, based on lost profit and reasonable additional costs such as targeted marketing campaigns which are intended to mitigate the loss. Loss of profit is determined as a reduction in revenue and gross profit for the period affected by the oil release, compared to the same period in adjacent years. Variable costs, dependent upon the volume of business, will reduce according to the reduction in revenue and should be taken into account in calculating a claim.

Table 4: Calculation of economic loss under the 1992 Fund Convention

| | | |
|---|---|---|
| A | | Loss of revenue |
| B | – | Variable costs saved |
| C | = | **Loss of gross profit (A – B)** |
| D | + | Additional costs |
| E | = | **Subtotal (C + D)** |
| F | – | Additional income |
| G | = | **Economic loss (E – F)** |

IOPC Funds

The calculation of economic loss under the Fund Convention is summarized in Table 4; the terms used in the table are elaborated as follows:

A **Loss of revenue** is the difference between revenues in the claim period and revenues generated normally in a comparable period in previous years.

B **Variable costs** are dependent upon the volume of business, which will reduce according to the reduction in revenue. Variable costs include raw material, a share of energy usage, labour wages, distribution costs, etc.

C **Loss of gross profit** is the loss of revenue less the variable costs.

D **Additional costs** are any extraordinary costs incurred to minimize or prevent further loss. These may include additional marketing costs, additional labour and equipment required to clean the property, etc. For a fisheries business, this may also include additional fuel costs required to fish in alternative uncontaminated areas, or the cost of measures taken to protect fishing gear, etc.

E **Subtotal (C+D)** is the sum of the loss of gross profit plus additional costs.

F **Additional income** may include income earned during cleaning operations or paid employment for other tasks. For example, for tourism claims, income may be gained from additional rentals paid by clean-up companies for the hire of a car park or other area of land, or additional profit generated by supply of meals or accommodation to the participants of the clean-up operations.

G **Economic loss** is calculated as the loss of gross profit, plus any additional costs, minus any additional income, as shown in the table.

Under the IOPC Funds guidelines, claims are accepted from the owner of an affected resource, for example a fishing vessel, mariculture or fish processing facility or tourism business. Owners would be expected to pay employees and make a claim for economic loss on that basis.

A summary of additional requirements for submitting a claim for economic loss in the fisheries and tourism sectors are provided below. Reference should be made to detailed guidelines that may be available from the body paying compensation when preparing and submitting a claim.

*Fisheries*

The IOPC Funds *Guidelines for Presenting Claims in the Fisheries, Mariculture and Fish Processing Sector*, the IOPC Funds *Claims Manual* and the IOPC Funds *Example Claim Form*[15] provide comprehensive guidance on calculating and submitting claims for economic losses incurred by affected individuals and businesses operating in that sector, and reference should be made to these documents when preparing and submitting a claim.

Quantifying economic loss due to mortalities of cultivated organisms may be a relatively straightforward process of counting and weighing the affected products. Lost profit is then calculated from projected harvest weights and the expected market price at the first point of sale, less any saved production costs such as staff wages, feed and fuel. The calculation explained above can be used to this effect. However, and particularly for mariculture operators, account also has to be taken of the degree of natural mortality which occurs routinely during cultivation, and a separate calculation is required, an example of which is given in Table 5.

Oil spills can have serious economic consequences for those engaged in mariculture and coastal fisheries.

Table 5: Example calculation of lost sales taking into consideration average mortality

| | | | |
|---|---|---|---|
| A | | Number of specimens stocked | 4,255.00 |
| B | – | Normal mortality | 22% = 936.00 |
| C | | *Total ready for sales (A – B)* | *3,319.00* |
| D | – | Sales after release | 2,291.00 |
| E | | *Number of specimens unsold (C – D)* | *1,028.00* |
| F | x | Average weight (kg) | 2.50 |
| G | | *Total mortality in kg (E x F)* | *2,570.00* |
| H | x | Average price | £6.42 |
| I | | Total loss (G x F) | GBP 16,499.40 |

IOPC Funds

[15] Available from the publications section of the IOPC Funds website: www.iopcfunds.org

The effects of oil on non-marketable life stages in the cultivation of certain species may generate more complicated claims that may require detailed examination and calculation in order to quantify the economic loss. Such examination may be undertaken in conjunction with fisheries experts from the body paying compensation.

Subsistence or artisanal fishing involving the provision of daily food or seafood for barter may not include financial transactions. The assessment of claims from many such fisheries may not be straightforward, as supporting documentation is often unavailable and only verbal reports of activities may be provided. The IOPC Funds guidelines note that a claim may nevertheless be considered, providing as much information as possible is submitted with the claim.

*Tourism*

The IOPC Funds *Guidelines for Presenting Claims in the Tourism Sector*, the IOPC Funds *Claims Manual* and the IOPC Funds *Example Claim Form* provide comprehensive guidance on calculating and submitting claims for economic losses incurred by tourism businesses, and reference should be made to these documents when preparing and submitting a claim.

For a claim to be admissible under the international conventions, a claimant's tourism business should provide goods or services directly to tourists, for example a hotel business. Claims from organizations further along the supply chain may not be admissible as they would not normally be considered to be sufficiently dependent upon tourism activities to have incurred a loss, for example a laundry business providing goods or services to hotels. The closer the business location is to the affected area, or the more it caters for visitors drawn by the natural resource that has been contaminated, the more likely the claim is to be considered admissible for compensation.

It will often take some time, following an incident, to substantiate that a business has been affected. While the duration of physical impact of an oil release may be short, the effect on visitor numbers may last longer due to booking patterns and possible longer-term negative public perception of the area affected. Compensation is paid only for losses that have occurred, and not for anticipated losses.

Claims from small businesses may not be able to provide all the information required, having little or no evidence to show normal revenue or income. Again, the IOPC Funds guidelines note that a claim may nevertheless be considered, provided that as much information as possible is submitted with the claim.

*USA—Oil Pollution Act of 1990*

Claims for loss of Profit and Earnings Capacity, according to the NPFC *Claimant's Guide* cover damages equal to the loss of profits or impairment of earning capacity due to the injury, destruction or loss of real property, personal property, or natural resources. Claims may be accepted from anyone suffering a loss of profits or income as a result of the incident. The *Claimant's Guide* sets out the information necessary to support a claim with the calculation of losses to be provided by the claimant. In particular, a claimant must show:

- That the property or natural resources were damaged, destroyed or lost as a result of the incident (including the release of oil and work to respond to that release)
- That claimants' income was reduced due to the damage or loss of the property or natural resources and by how much the income was reduced
- The amount of profits and earnings in similar time periods
- What income, if any, was received from any alternative employment or business operation
- Savings on overheads and other normal expenses not paid as a result of the oil release (e.g. commuting costs, utility fees)

This list is a summary of the requirements of the NPFC and reference should be made to the detailed *Claimant's Guide* when preparing and submitting a claim.

## Environmental monitoring, damage and restoration

The different types of damage to the environment that can occur as a result of an oil release are described in other titles in the Ipieca-IOGP good practice guide series. Such damage to the environment can form a substantial component of liability and compensation, and is dealt with in markedly different ways according to the legal regime in place.

### *International conventions*

In countries[16] that are signatory to an international convention for compensation, claims for work done to restore damaged resources and encourage natural recovery are admissible under specific criteria. These criteria, provided in the IOPC Funds *Claims Manual*, are applied generally to incidents under the wider international conventions. Compensation is payable for the costs of reasonable reinstatement measures aimed at accelerating natural recovery of environmental damage. Contributions may be made to the costs of post-release studies provided that they relate to damage defined within the conventions, including studies to establish the nature and extent of environmental damage caused by the oil release and to determine whether or not reinstatement measures are necessary and feasible.

The international conventions recognize that measures taken may not bring a damaged resource back to the same ecological state existing prior to the release. As a consequence, the aim of reasonable measures of reinstatement should be to re-establish a biological community in which the organisms characteristic of that community at the time of the incident are present and are functioning normally. This link between the measures and the damaged components is essential for consistency with the definition of pollution damage in the international conventions.

In addition to satisfying the general criteria for the acceptance of claims for compensation set out previously in this document, claims for the costs of measures of reinstatement of the environment will qualify under the international conventions for compensation only if they:

- Are likely to accelerate significantly the natural process of recovery
- Seek to prevent further damage as a result of the incident
- Do not, as far as possible, result in the degradation of other habitats or in adverse consequences for other natural or economic resources
- Are technically feasible
- Incur costs that are proportional to the extent and duration of the damage, and to the benefits the measures are likely to achieve

Below: damage to the environment can form a substantial component of liability and compensation, and is dealt with in markedly different ways according to the legal regime in place.

iStock.com/joesboy

iStock.com/bluepompano

[16] See the website of the International Maritime Organization (www.imo.org) for a list of countries.

Claims for economic loss as a result of environmental damage that can be quantified in monetary terms are assessed in a similar way to claims for other economic losses. Claims for environmental damage based on abstract quantification calculated in accordance with theoretical models, and claims for compensation for loss of function of the environment, are inadmissible under the International Compensation regimes.

To facilitate decision making by national authorities, monitoring programmes may be undertaken, often comprising surveys and the collection and analysis of oil, water, sediment or biota for chemical analysis. Claims for sampling should include the rationale for the work, information on the samples collected and analysed, and the results of the analysis.

*National and regional legislation*

A number of countries have legislation in place to compensate for the effects of oil on the environment on bases that differ from the international conventions. Some ascribe a financial value to the measured impact, while others calculate environmental injury solely on the basis of formulae. As an example of the latter, Russian law requires the Metodika formula to be applied to a release of oil in the Russian Federation. Legislation applicable to the USA and the European Union is summarized below.

*US OPA '90—Natural Resource Damage Assessment*

The US Natural Resource Damage Assessment (NRDA) regulations developed under OPA '90 also acknowledge natural recovery as a key mechanism for restoration but introduce two concepts: primary and compensatory restoration. Compensatory restoration is intended to compensate for environmental services 'lost' during the period the environment is undergoing recovery, whereas primary restoration refers to actions taken to restore resources to the condition they would have been if the release had not occurred, and is equivalent to reinstatement under the international conventions. The NRDA process generally follows three steps:
(1) preliminary assessment; (2) injury assessment followed by restoration planning; and (3) restoration implementation.

The process by which natural resource damage assessments are undertaken is set out in OPA '90 as well as in regulations established by US agencies including the National Oceanic and Atmospheric Administration (NOAA).

Natural resources under OPA '90 comprise land, fish, wildlife, biota, air, water, groundwater drinking water supplies etc. controlled by the USA (including resources of the Exclusive Economic Zone), any state or local government, Indian tribe or any foreign government.

Natural resources damages are recoverable only by State, Federal, tribal or foreign natural resource trustees. If applicable, for example in an incident affecting several jurisdictions, the trustees work together in a trustee council to implement restoration plans to restore, rehabilitate, replace or acquire the equivalent of the damaged natural resource. To achieve this task, the trustees seek to restore injured resources and services to baseline conditions that would have existed for those resources had the release not occurred, and to compensate the public for interim losses that occurred during the time required for the natural resource to recover to baseline conditions.

Over the course of the NRDA process, the trustees assess the nature and extent of the injuries to natural resources due to the release of the oil and associated response actions. The trustees also develop a restoration plan, seek compensation from the responsible party, oversee and/or implement the restoration plan, and conduct or oversee monitoring to ensure successful restoration. Liability for natural resource damages has three components:

- The cost of restoring, rehabilitating, replacing or acquiring the equivalent of, the damaged natural resources
- The diminution in value of those natural resources pending restoration
- The reasonable cost of assessing those damages

The trustees are encouraged to pursue cooperative damage assessments with the responsible party and are required to invite the responsible party to participate in the damage assessment process. This joint approach has a number of benefits to the trustees and to the public. The alternative is assessments conducted in parallel by the trustees and the Responsible Party. In those cases, each side typically develops a separate damage assessment that is ultimately judged by the courts, either through a trial or settlement. This approach can increase the cost and length of the assessment process.


David George


ITOPF

Methods used to place a value on the interim loss of resources often involve surveys carried out to determine the monetary value that the public would place on natural resources, or to encourage the public to state their preference for particular environmental resources, often at a stated cost.

The cost of primary restoration will vary, based in part on the extent of damage, the difficulty of restoring injured resources to baseline conditions, and the projects selected to achieve those goals.

Until the injured resources are fully restored, there may be an interim loss (a reduction in the resource or services it provides), and the amount of that loss will vary too, based on the primary restoration options that are selected, and the amount of time needed to reach full recovery under the selected options.

Several methods have been used to determine the value of interim loss although there are differing views on the merits of some approaches. One method is to provide an equivalent level of natural resources or services through habitat restoration or resource replacement projects. The cost of these projects becomes the financial estimate of the damage for interim loss. Resource equivalency analysis (REA) and Habitat equivalency analysis (HEA) are often used for such measurements.

REA and HEA can be appropriate methods when replacement of injured habitats or services is possible, and when the replacement habitats or services are comparable to those injured. Because identical resources may not always be available, these methods seek to provide equivalent resources and services. Regulatory guidance favours this type of compensation 'in kind' through resource restoration projects, to the extent that they are possible.

Alternative methodologies, such as an ecosystem services approach, are also being studied to determine whether they can supplement traditional methods of assessing, or valuing, damage to natural resources by estimating the flows of ecosystem goods and services before and after an event. The development of this type of analysis is in a preliminary stage, and at this time there are no scientifically-accepted methods for using an ecosystem service approach to place a value on natural resource damages.

A further method uses conjoint analysis, in which survey respondents choose from among several project options in order to identify their preference for particular environmental resources (e.g. acres of habitat), often at a stated cost. Finally, a related methodology known as *contingent valuation* employs surveys to estimate the monetary value that members of the public place on natural resources, based on the respondents' 'willingness to pay' a stated sum for projects to restore or fix a problem identified in the survey. Both of these methods are subjective and indirect, can involve large surveys of populations associated with the affected resource and may be limited to the extent that they reflect the values of laypersons who are unfamiliar with the resources in the survey and with the purposes to which the surveys may be put. These methods are more likely to be used when restoration of the injured resource is not possible, or when restoration will not provide comparable resources or services.

This distinction is important because these different methods, REA/HEA on one hand, and contingent valuation and conjoint analysis on the other, usually result in significantly different damage estimates.

*European Union—Environmental Liability Directive*

The 2004 Environmental Liability Directive (ELD) establishes a framework of liability and compensation for environmental damage caused by potentially polluting commercial operations within the member states of the European Union. Implementation of the directive was completed across the EU in 2010.

The operators of hazardous activities listed under Annex III of the directive are liable strictly for the costs of prevention and remediation. Such operators include large industrial installations, waste management operations, industries discharging polluting substances into water and the air, and companies handling dangerous substances and genetically modified organisms. Operators may not be liable where environmental damage or the threat of environmental damage is caused by armed conflict, hostilities, civil war or natural events, where liability falls within specified international conventions and other exceptions. Operators of other activities not listed in Annex III of the Directive are assigned fault-based liability, where the claimant must prove that the polluter has been at fault or has been negligent.

The ELD is an administrative instrument that does not allow private parties a right of compensation for personal injury, property damage or economic loss claims. Instead, the operator is liable for preventive and remedial costs, incurred either by the operator or by the competent authority within the member state in preventing or remediating environmental damage.

Environmental damage under the ELD applies to:

- Protected species and habitats defined in the separate EU Habitats and Birds Directives
- Damage that has a significant adverse effect on the quality of water defined in the separate EU Water Framework Directive
- Contamination to land that creates a significant risk of adverse effects on human health

For the first two categories, damaged resources and/or services should be returned to the baseline conditions that would have existed had the damage not occurred. For the third category, contamination posing a threat to human health should be removed and disposed of satisfactorily.

Guidance for judging whether the damage is 'significant' is outlined in the ELD. In summary, there must be a *'measurable adverse change to the baseline condition … determined by measurable data'.*

Under the ELD, an operator can be required to pay for three 'layers' of remediation:

- Primary remediation: this includes the immediate actions undertaken to stop the incident: to minimize, prevent and contain further damage, and clean up. These can also be known as emergency remedial measures. Also included here are the more medium- to long-term activities designed to return the resource/site to baseline conditions.
- Complementary remediation: this includes the supplemental actions taken off-site to compensate for instances when primary remediation does not fully restore the damage.
- Compensatory remediation: this involves actions to compensate for 'interim losses', i.e. the losses that occur during the period between the onset of remediation and the restoration of baseline conditions. Compensatory remediation consists of actions taken at an alternative site(s) to restore or protect habitats or services that are equivalent to those lost at the site of the damage, or actions that will ensure that the damaged resource/habitat is restored to levels in excess of baseline conditions.

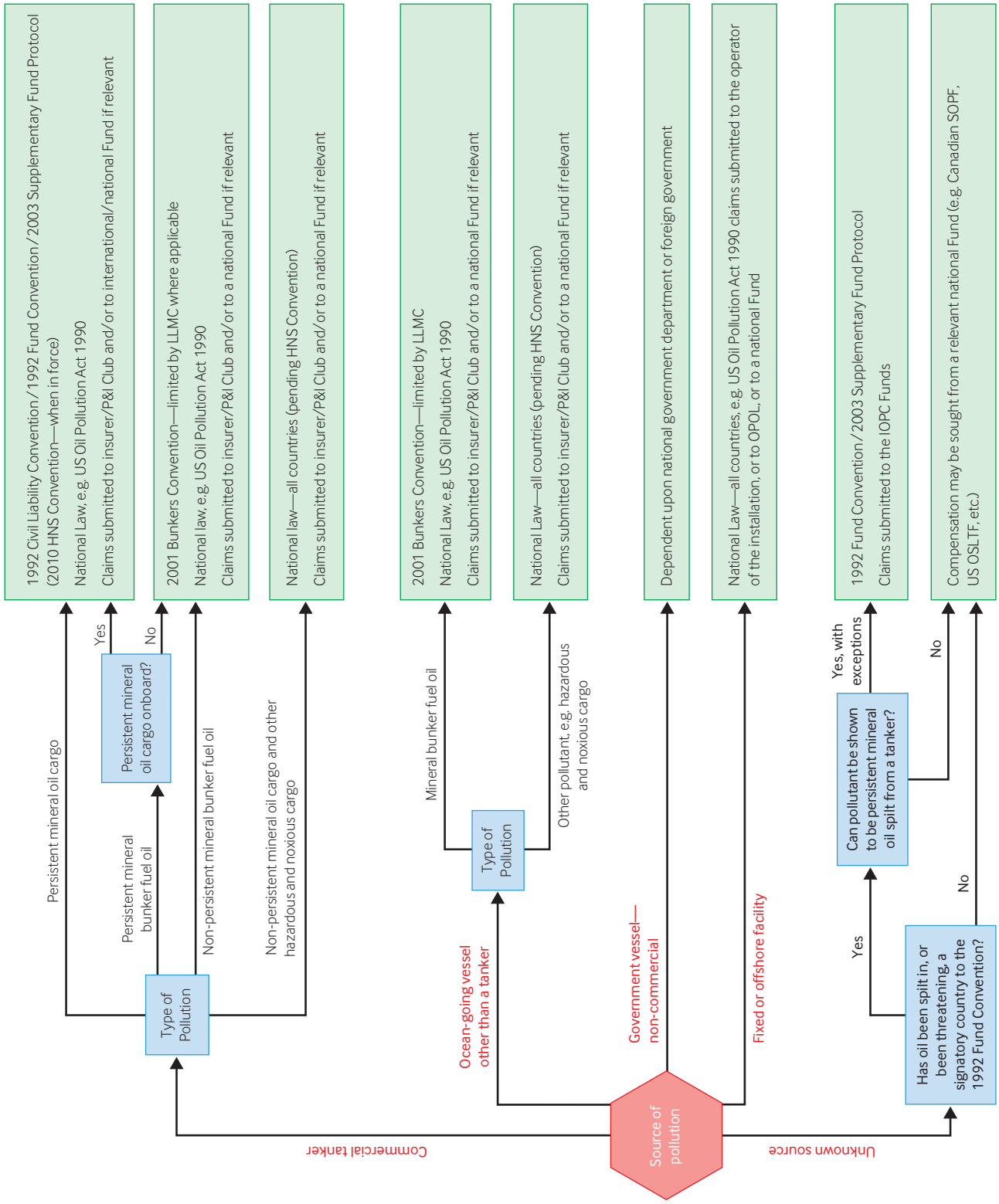
The ELD is not applicable to incidents where liability and compensation falls within the scope of a number of international compensation regimes, including the Civil Liability Convention, Fund Convention and Bunkers Convention. Furthermore, where applicable, an operator will retain the ability to limit liability under the provisions of the Convention on Limitation of Liability for Maritime Claims or other applicable legislation.

# Appendices


Appendix 1: Pollution damage liability and compensation schemes diagram 46

Appendix 2: Oil spill preparedness and response resources 47

# Appendix 1: Pollution damage liability and compensation schemes diagram



# Appendix 2: oil spill preparedness and response resources

The Ipieca Oil Spill Group harnesses the oil and gas industry's collective expertise and technology on oil spill preparedness and response to develop and share good practice guidance and tools covering:

- Onshore and offshore preparedness and response frameworks
- Surveillance, monitoring and clean-up
- Responder training

## Strategy

Ipieca guidance provides frameworks upon which preparedness and response plans and operations are built and reflect the latest technology, knowledge and good practices throughout the industry.

www.ipieca.org/our-work/nature/oil-spill-preparedness-and-response/oil-spill-response-resources/strategy/

## Planning

Oil spill planning covers an array of topics, from contingency planning to sensitivity mapping to regulatory pre-approvals and more. Ipieca guidance supports the development of response capability compliant with local regulations and commensurate with the oil spill risks of an organization or facility.

www.ipieca.org/our-work/nature/oil-spill-preparedness-and-response/oil-spill-response-resources/oil-spill-planning/

## People

Responder training and exercises are essential for effective oil spill response. When an oil spill occurs, the issue of health and safety, for the public and responders, is a serious consideration. Identifying the principal issues, their degree of severity and the practical steps to minimize the impact of the spill are critical.

www.ipieca.org/our-work/nature/oil-spill-preparedness-and-response/oil-spill-response-resources/people/

## Response

The success of a response to an oil spill incident is based on prior preparedness efforts as well as an understanding and working knowledge of the capabilities that make up the 'response toolkit'.

www.ipieca.org/our-work/nature/oil-spill-preparedness-and-response/oil-spill-response-resources/response/

## Impacts

Despite the best efforts of those involved in a response, oil spills may impact marine ecological resources and functions, as well as marine and estuarine shorelines. Spills also have the potential to affect property and commercial activity.

www.ipieca.org/our-work/nature/oil-spill-preparedness-and-response/oil-spill-response-resources/impacts/

## Translations

Many of Ipieca's oil spill preparedness and response resources are translated into:

- French
- German
- Italian
- Portuguese
- Russian
- Spanish

www.ipieca.org/our-work/nature/oil-spill-preparedness-and-response/oil-spill-response-resources/translations/

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# List of acronyms and abbreviations

# List of acronyms and abbreviations

| | |
|---|---|
| ASTM | American Society for Testing and Materials |
| CERCLA | Comprehensive Environmental Response, Compensation and Liability Act of 1980 (USA) |
| CLC | Civil Liability Convention |
| COFR | Certificate of financial responsibility |
| COPCF | China Oil Pollution Compensation Fund |
| ELD | 2004 Environmental Liability Directive (EU) |
| EPA | US Environmental Protection Agency |
| FOSC | Federal On-Scene Commander (USA) |
| FPSO | Floating production storage and offloading facilities |
| FSU | Floating storage units |
| GT | Gross tonnage |
| HEA | Habitat equivalency analysis |
| HNS | Hazardous and noxious substances |
| IG P&I | International Group of P&I Clubs |
| IMDG | International Maritime Dangerous Goods code |
| IMO | International Maritime Organization |
| IOPC Funds | International Oil Pollution Compensation Funds |
| LLMC | Convention on Limitation of Liability for Maritime Claims |
| LNG | Liquefied natural gas |
| NOAA | National Oceanic and Atmospheric Administration (USA) |
| NPFC | National Pollution Funds Centre (USA) |
| NRDA | Natural resource damage assessment |
| OPA '90 | US Oil Pollution Act of 1990 |
| OPOL | Offshore pollution liability agreement |
| OSLTF | Oil Spill Liability Trust Fund (USA) |
| P&I Clubs | Protection and Indemnity Clubs |
| PAH | Polyaromatic hydrocarbon |
| REA | Resource equivalency analysis |
| RP | Responsible party |
| SDR | Special Drawing Rights |
| SOPF | Canadian Ship-source Oil Pollution Fund |
| STOPIA | Small Tanker Oil Pollution Indemnification Agreement 2006 |
| TOPIA | Tanker Oil Pollution Indemnification Agreement 2006 |
| USCG | United States Coast Guard |

# Contact details for further information

# Contact details for further information

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Website: www.iopcfunds.org

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Website: www.response.restoration.noaa.gov

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Website: https://www.uscg.mil/Mariners/National-Pollution-Funds-Center/

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# Further reading

# Further reading


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https://www.imo.org/en/About/Conventions/Pages/Default.aspx

International Group of P&I Clubs (website): https://www.igpandi.org/

Introduction to the HNS Convention (maintained by the IOPC Funds):
www.hnsconvention.org

IOPC Funds publications (list of titles on the IOPC Funds website):
www.iopcfunds.org

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www.itopf.org/knowledge-resources/documents-guides/technical-information-papers/

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ipieca

Ipieca is the global oil and gas association dedicated to advancing environmental and social performance across the energy transition. It brings together members and stakeholders to lead in integrating sustainability by advancing climate action, environmental responsibility and social performance across oil, gas and renewables activities.

Ipieca was founded at the request of the United Nations Environment Programme in 1974. Through its non-lobby and collaborative approach Ipieca remains the industry's principal channel of engagement with the UN.

International Association of Oil & Gas Producers

The International Association of Oil & Gas Producers (IOGP) is the global voice of our industry, pioneering excellence in safe, efficient and sustainable energy supply—an enabling partner for a low-carbon future. Our Members operate around the globe, producing over 40% of the world's oil and gas. Together, we identify and share knowledge and good practices to improve the industry in areas such as health, safety, the environment and efficiency.

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