

Seas At Risk Position Paper

Ship waste dumping and the clean ship concept

How an improved EU PRF Directive can play a key role in Cleaning up the Seas

Foreword

Just under 10 years ago, North Sea Ministers acknowledged that a new approach would be needed to minimise the environmental impact of commercial shipping. The 'Clean Ship concept' was born and whilst the idea has gained momentum amongst global policy makers and shipping companies alike, the maritime sector has failed to fully incorporate the concept in many areas, not least as regards the dumping of waste at sea.

The intentional or accidental discharge of oily waste, sewage, garbage (including items classified as marine litter and fishing gear) and cargo residues pose not only environmental problems but have considerable economic, social and human health impacts. The level of impact depends on specific ship features (e.g. tonnage, engine type, resource consumption), but in principle they apply to all vessel types and are apparent in all regions of the globe, not least in European waters.

When considering that several Member States of the European Union have made strong commitments in the past to a 'Clean Ship' approach and taking into account both global and European regulations intended to discourage waste dumping, it has clearly been a considerable failure of maritime policy that ship waste dumping continues and that a complete external costs 'bill' to world citizens and environmental resources due to all ship source pollution is estimated at EUR 300 billion, 21% of which is attributed to the European fleet (Maffii, 2007).

However, over recent years there has been a distinct wave of renewed political and public interest to better protect against all forms of marine pollution. In this, the problem of marine litter (otherwise known as marine debris) has emerged as an emerging issue of concern alongside more traditional worries regarding the dumping of other harmful substances such as oil waste. Globally, the MAPROL Convention regulates the discharge of waste at sea and covers all the major solid and liquid substances that ships produce. **In Europe, it is the review of the Directive 2000/59/EC on Port Reception Facilities (PRF) that provides a key opportunity to tackle the dumping of ship generated waste.**

This paper intends to give further insight into the problem of ship-waste dumping and recommends some crucial reforms needed for the Port Reception Facilities Directive (to be acknowledged as the PRF Directive from here in) that can reduce the potential for illegal dumping of waste at sea and in turn facilitate a move towards making the Clean Ship concept a reality.

The paper is broken down into 4 chapters:

- 1) Ship waste dumping, the problem;**
- 2) The Clean Ship concept in relation to ship waste;**
- 3) Problems associated with ship generated waste in Europe;**
- 4) Detailed recommendations on the review of the PRF Directive (and other associated instruments)**

Key recommendations to prevent ship waste dumping:

A clear, more uniform and fully implemented PRF system across European ports

Mandatory discharge of waste at reception facilities

The provision of adequate facilities to handle and recycle all types of waste

Stricter control and enforcement through better and more frequent monitoring

Removal of direct fees for discharging waste

Better notification procedures between vessels, port authorities, waste operators and inspection agencies

Fishing vessels to report lost or abandoned fishing gear to the coastal state where the loss has occurred and to the state whose flag the ship is entitled to fly

Introduce mandatory educational programmes for seafarers to enhance knowledge and awareness of marine environmental issues.

Economic incentives for clean shipping through fee differentiation

Port authorities should assume a more active and central role in the waste management regime

Member States must be obliged to report all waste delivered at PRFs

1. Ship waste dumping: the problem

Ship source waste comes in many forms and has many impacts on the marine environment. Historically, the biggest concern has been the dumping or accidental discharge of oil and bilge water, however today there are also wider fears for the impact on marine ecosystems of ship-source litter, wastewater, including sewage, and cargo residues.

1.1 Oily waste

Illegal discharge of oily waste by vessels is still a major source of oil pollution despite many instances of oil pollution being avoidable, measures have thus far been inadequate to reduce and eliminate illegal spills (Camphuysen, 2007). According to the latest GESAMP report (2007), operational discharges from ships still account for 45% of the estimated average annual input of oil entering the marine environment. Large, accidental spills might receive the most attention but the continuous discharge of oil due to ship's operational activities and the illegal discharge are also major concerns.

1.2 Marine Litter

Although there are still many uncertainties, there is little doubt that waste disposal by ships is an important source of marine litter worldwide. Globally, it was estimated in 1982 that 8 million items of marine litter enter the world's oceans and seas every day - of which 5 million items are thought to be thrown overboard or lost from ships. Those figures are now thought to be much higher and could be multiplied several times (Barnes, 2005,).

Specific to Europe, it has been estimated that in the North Sea around 20,000 tonnes of waste is dumped each year - despite the North Sea having been designated as a MARPOL Special Area for the purpose of Annex V. It is also the case that although MARPOL banned the discharge of plastics overboard in 1988, there seems to have been no subsequent improvement in the situation with regard to marine litter (OSPAR Quality Status Report 2000). In the Netherlands it has been estimated that as much as 90% of the plastic found on beaches originates from shipping and fisheries (Van Franeker, 2010).

Abandoned, lost or otherwise discarded fishing gear (ALDFG) is also a major problem that is increasingly of concern. Between 2001 to 2006 in the North East Atlantic, it was found that a significant increase of fishing gear was found during beach litter monitoring programmes (OSPAR Commission, 2007) and in the Netherlands, Dutch NGO the North Sea Foundation found that 36% of all beach litter items monitored between 2002-2010 came from fisheries (in particular synthetic rope and netting).

1.3 Wastewater discharges

More than 250 million tonnes of grey (laundries, kitchen, showers) and black water (sewage) are discharged from ships globally, of which 25% comes from the EU fleet (Maffii, 2007). Both grey and black water contain organic matter and contribute to eutrophication. In the Baltic sea, although the amount of the nutrient load originating from ships makes up a small percentage of the overall input, it is not negligible due to the sensitivity of the Baltic Sea marine environment and the fact that it is concentrated on heavily used shipping routes (Huhta et al, 2007).

1.4 Chemical Discharge and Cargo Residues

Chemical tankers clean their cargo tanks with seawater and discharge the wastewater into the sea, which amount to 7 million tonnes of polluted wastewater annually worldwide (Maffii, 2007). Furthermore, vessels consume chemical substances during operations, a great portion of which leaks into the environment, via bilge waste-water, tank washing waste-water, grey or black water. These include lubricants, cleaning agents (that can contain carcinogenic solvents or surfactants), chemicals for sewage treatment, anti-corrosion paint and boiler water

treatment agents. Though most of these substances are toxic and persistent (non-biodegradable), they still find their way into the environment.

1.5 Social and Economic Costs

Marine pollution has adverse effects on several key industries that rely on the marine environment, including agriculture, aquaculture, fisheries, harbours, industrial seawater users, marinas, municipalities (through loss of tourism), power stations, rescue services and voluntary organisations.

The economic cost of ship source pollution has been under researched yet there is evidence that points at very significant costs to society. The full cost of all oil pollution from ships (including permitted, small accidental, big accidental and illegal) for example, is estimated to cost around EUR 8 billion for the EU fleet in 2006 (Maffi et al, 2007)¹. Although difficult to attribute the direct impact of ship-source litter, in 2010 KIMO International performed the most comprehensive study into the economic impacts of marine litter where they found UK municipalities spend approximately €18 million each year removing beach litter, which represents a 37% increase in cost over the past 10 years. Similarly, removing beach litter costs municipalities in the Netherlands and Belgium approximately €10.4 million per year. Clearly, in that ship-source litter makes up a large proportion of marine litter, the sector itself is part of the economic problem.

2. The Clean Ship concept in relation to ship waste

The Clean Ship concept that was launched by Seas At Risk at the fifth North Sea Conference in 2002 has since passed into popular parlance, with EU regulators and other stakeholders increasingly using the term to define and describe their ultimate objective for an environmentally benign shipping sector. Disappointingly, the Clean Ship Concept is a long way from being properly implemented, and regulators recognise this: according to the OSPAR Commission the approach “still needs to be implemented in maritime and environmental policies” and further efforts are needed “to mitigate adverse effects of shipping”.

The Clean Ship is a ship designed and operated in an integrated manner to eliminate harmful operational discharges and emissions; it is a ship that is constructed and can ultimately be recycled in an environmentally acceptable way, and one that is energy and resource efficient in its daily operation.

2.1 Onboard procedures

For a ship to truly embrace the concept as regards onboard waste management, a ship will prioritise the use of technologies and practises that ensure a ‘zero discharge’ policy. In this, there are a number of ways that a ship can attain such a goal, not least through utilizing technologies such as the use of compactors, pulpers and shredders that will help handling waste brought on board. These sorts of technologies are extremely important when considering that waste storage capabilities are severely restricted on vessels, due to space and weight limits.

Disappointingly, many commercial ships use onboard incinerators (around half of all ships calling at major ports use incinerators) which can handle many types of ship-source waste including both sludge and household items (Maes et al., 2000). However, other than serious concerns over the emission of dangerous pollutants from incinerators, the practice of incineration makes it difficult for authorities to assess whether or not a ship has complied with regulations as incinerator ashes are both difficult to measure and associate to types and quantities of garbage items. Incineration is also detrimental to onboard efforts and port reception facilities, in that the continuation of such a practice will discourage further investment in waste handling and recycling facilities at ports (due to less garbage being discharged at port), and investment in alternative onboard clean technologies.

¹ If efficient enforcement measures succeed in reducing illegal oil spills to zero, a 13% reduction of external costs could be obtained (Maffii et al, 2007).

Another aspect of ensuring a clean ship approach onboard involves committing to recycling of ship source waste. Assuming adequate on-board storage space is available, port waste disposal volumes (and thus waste handling time) can be reduced if recyclable materials are separated. Easily recycled materials include aluminum and steel cans, glass bottles, plastic bottles, newspapers, and cardboard packaging. Other materials that may be recycled include metal parts, fishing nets, ropes, and other gear.

2.2 In port facilities

Evidently, with onboard recycling, such a practise only makes sense if PRF and land-based waste management systems accept separated recyclable materials. Unfortunately in Europe, it is often the case that such facilities are not available; a common scenario entails a ship pulling up beside a barge that is not equipped with separation units and where upon all the onboard separated waste is dropped into the barge. Such a scenario gives little incentive for crews to practise good onboard management.

Facilities not accepting separated garbage is not the only problem with ports in Europe failing to incentivise clean shipping. Although many ports in Europe have technologically adequate facilities – in that many ports have reception facilities to handle different waste streams – it is often a lack of capacity to meet demand that poses problems in some European ports.

2.3 Legislation for Clean shipping

In order to encourage ships to invest in the sort of technologies and practises that would store and handle waste in an environmentally friendly way, and similarly to encourage ports to invest in facilities appropriate to handling all ship waste, legislation must ensure that ship waste dumping is not financially attractive (so as to incentivise the ship operator), or for any other reason, and that all ship waste ends up discharged ashore (so as to incentivise the PRF owner). Here, legislation that is primarily intended to incentivise either one of the ship operator or the PRF owner will also indirectly incentivise the other. For example, the 2011 adoption of new IMO Annex V regulations acts as an incentive for ship owners not to dump waste at sea. This, in theory, should also act as an incentive for ports to provide better facilities as demand for discharging waste at ports should increase. In turn, the better facilities provided at port should also have a compounding effect and make it more likely a ship chooses to discharge, and so forth.

Legislative incentives are also hugely important in the shipping sector because of the inherent difficulties of policing the marine environment. Of course, there are companies who already subscribe to clean shipping habits and invest in clean technologies without the need of legislation. However, shipping sets itself apart from other industries due to its geographic bearing and that international legislation does not involve a closed system of full waste accountability. Thus, to ensure against rogue operators behaving in an environmentally damaging manner, it is crucial that regulation fully incentivises ships to discharge their waste at a PRF. Understanding how the realisation of the Clean Ship concept, in relation to ship waste dumping, can be achieved must be the goal of the current review of the Directive; and acting on that understanding must be goal of amending the legislation. And although there are some positive aspects of the current Directive it is also important to realise there are many weaknesses.

3. Problems associated with ship generated waste in Europe

Ships continue to discharge waste illegally at sea and although EMSA has concluded that most PRFs in Europe are adequate², there are many cases where the provision of port waste reception facilities in Europe remains poor, particularly for oily waste and in smaller ports, marinas and fishing harbours where waste reception handling plans and monitoring is still lacking (EMSA, 2010). Finding reliable data on quantities of waste delivered at ports in Europe is almost impossible but is telling that at a global level, only about 27% of all ship waste is delivered to reception facilities, while the majority is dumped or incinerated (Sheavly et al., 2007). In essence, there are three main weaknesses of the Directive which need to be resolved before vessel-based pollution can be eliminated:

3.1 Direct Costs for delivering waste

One traditional reason given for ships failure to discharge their waste to shore has been inadequate provision of port waste reception facilities. While this may still play some part, low levels of usage in ports that have excellent PRF provision suggest that the real reason for dumping at sea is often to save on the fees that ports normally charge for the use of such facilities. Ships can save these fees and dump at sea with little chance of being caught.

One of the main problems with European ports as far as waste handling is concerned entails the financial disincentives to use of PRFs. By incorporating the cost of PRF use in the general harbour dues which all ships pay (regardless of whether they use the PRFs) one very obvious and substantial reason for ships choosing to dump at sea is removed. Such an approach, generally known as a “no-special-fee” system, is already in place in the Baltic Sea. Although other ports in Europe also utilize a no special fee system, for it to be truly effective it should be implemented without waste thresholds and should be rolled out across a region. At present the Directive only requires a partial inclusion of PRF fees in harbour dues with savings still to be made by ships that choose to dump at sea instead.

3.2 Sub-optimal availability and use of PRF

As far as oily waste is concerned, the cost of providing adequate port facilities is likely to deter ports from investing in anything other than the most basic systems, unless they can achieve guaranteed profits which outweigh any costs involved (Carpenter, 2005). Disposal of such waste is time consuming and is relatively expensive, therefore instead of discharging the oily wastes into shore reception facilities, ship operators typically release them into the sea. Furthermore, oily waste, otherwise known as slops from blending activities and slops from tank cleaning, are difficult to deliver and some facilities are often reluctant to receive them. There is a distinct lack of data on quantities of oily waste delivered at ports across Europe though it is thought to be extremely low with just 6% of ships visiting the port of Rotterdam, Europe’s busiest port, delivering Annex I waste (FOEI, 2008).

In the case of Annex II, noxious liquid substances, all ports normally visited by vessels carrying such cargo wastes or residues already provide appropriate facilities (Carpenter, 2005). There is no, or little, data available on the level of waste discharge.

Facilities for Annex IV waste (sewage) are currently suboptimal and until it becomes mandatory both that facilities are provided and that all vessels visiting EU ports must make use of them, it is unlikely that there will be a great expansion of provisions in the region (Carpenter, 2005). It is also unclear as to how much Annex IV waste is actually delivered at ports in Europe (EMSA, 2010).

While Annex V facilities are widely available in the North Sea region, only a small number of ports operate a system to segregate and recycle waste (Carpenter, 2005) and very little is known about how much waste is actually recycled. Data showing the number of vessels discharging Annex V waste at European ports is also difficult to come by however as an indication, approximately 34% of all ships visiting the port of Rotterdam deliver Annex V waste to

² Resolution MEPC.83(44) stated that facilities provided by ports must meet the needs of the ships *normally* using the port; and allow for the ultimate disposal of ships’ wastes to take place in an *environmentally appropriate way*.

a PRF (FOEI, 2008). It is however beyond a doubt that substantial amounts of solid and liquid waste are discharged at open sea, also in forbidden areas, and that onboard incinerators are not managed in accordance with regulations (Maffii, 2007). Illegal activities usually occur in order to save waste quantity-related disposal costs.

What is clear within Europe is that reporting of the amounts of waste delivered at ports is woefully insufficient in and where reporting is available, it is difficult to validate (EMSA, 2010). Here it is necessary for mandatory reporting of all waste discharged to a PRF.

3.3 Ambiguity and distortion of the level-playing-field

The absence of detailed and clear guidelines has created uncertainty in ports (Carlbro, 2005). The terminology is at times ambiguous (e.g. concerning waste categories) and in certain aspects the Directive leaves too much room for varying interpretations. Furthermore, there is currently no clear description of the role of the different parties involved in the implementation of the Directive and their responsibilities.

As a result, ports have interpreted the Directive in different ways so that the level of implementation of the Directive differs from Member State to Member State. Different ports work with their own waste handling system based on different types of cost recovery which often remained vague (EMSA, 2010). This creates unclear situations about the amount of waste that can be delivered, the height of the fee, the time it takes to deliver and the available facilities in the harbour³. And since the communication around waste disposal in ports is still poor, this has led to confusion among stakeholders including ships, shipping agents, waste operators and environmental authorities. This is far from ideal, because the more complex the situation, the more likely it is that vessels will still continue to dump waste (Carpenter, 2001).

The differences in charging systems for waste disposal distort the playing field and lead to an inefficient allocation of resources. When environmental standards are high in some ports and low in others, the competitive position of the ports with high standards is weakened and cargo will shift to the ports with lower standards. Paradoxically, ports with high standards but priced competitively relative to other ports, may come under pressure through disproportionately attracting large amounts of waste (De Langen and Nijdam, 2008).

A particularly interesting case that highlights the issue of a distorted playing field is that of Hamburg and Rotterdam. In Hamburg, costs are recovered for waste disposal through an indirect fee system whilst in Rotterdam a direct fee system is in existence. Under normal circumstances, it would be considered that the Hamburg system would attract large volumes of waste as the costs are met by the indirect fee. However, because the indirect fee is not 100% in that waste thresholds are in place - to deter waste trafficking - ships will tend to only deliver quantities of waste up to and including the maximum threshold (De Langen and Nijdam, 2008). The problem here is knowing whether or not the undelivered waste is ever delivered to a PRF or whether it is dumped at sea. See also information on a disposal voucher system under 'Detailed Recommendations'.

3.4 Weak control and enforcement

Dumping of waste overboard remains an attractive option for shipping companies as long as control and enforcement are weak and economic benefits can be achieved with illegal dumping. To illustrate this enforcement and compliance problem one need only look at the existing situation in respect of plastics. The discharge of plastic has been prohibited by MARPOL Annex V for many years, yet on most beaches and certainly any that are close to a shipping route it is easy to find plastic items which are strongly related to shipping; e.g. synthetic ropes, nets, jerry cans etc.

3.4.1 Garbage record books

³ Art. 5 of the Directive requires waste reception and handling plans developed and implemented for each port following consultations with relevant parties (i.e. port users). MEPC Guidelines stipulate that a port waste management plan should provide, *inter alia*, information to users on the location, cost and procedures for using the facilities.

Intended to ensure that no waste has been dumped during a voyage, MARPOL Annex V requires certain vessels to carry a Garbage Record Book and an Oil Record Book. However, notified data is often very unreliable and particularly worrying are anecdotal claims by seafarers that the Garbage Record Book is viewed by some as the 'Book of Lies'.

The one about the magic pipe, monkey business and a Catholic priest

The discovery in 2010 of a 'magic pipe' and 'monkey business' on a ship by a Catholic priest sounds like the start to a bad joke. In actual fact it is damning evidence of a long running saga and environmental crime that poses some difficult questions for inspection authorities and European regulators in their ability to crack down on ship waste dumping.

Earlier this year, it was reported that Cardiff Marine Inc., a Liberian-registered shipping company, was found guilty of illegally dumping waste at sea. The vessel was found to have a 'bypass hose', commonly referred to as a magic pipe, that allowed the ship to siphon off oily waste into the sea rather than store it onboard and pay for disposal at a port reception facility.

Thanks to what can only be described as a divine intervention, the illegal measure was uncovered when an American clergyman went on board to speak with the vessel's seafarers. In conversation with one of the crew it was admitted that "monkey business" had taken place in the engine room. On further inspection by the coast guard, the offending pipe was found and the ship detained.

It was also found that crew members aboard the M/V Capitola disregarded these policies and discharged oily water and oil residues, but did not record those operations in the ship's Oil Record Book, as required by law.

SOURCE: www.marinelog.com

3.4.2 Notifications

A major problem faced by port authorities concerns the notification of a ship's next port of call. Such a requirement is essential in order to keep track of vessel's movements and to ensure that a vessel goes on to discharge waste at the next port of call, under the scenario whereby assurances have been given by the vessel at the port of embarkation. Recent research indicates that substantial numbers of ships do not end up disembarking at the port they indicated to Port Authorities (see case study below).

Waste notification between ports is inadequate

Out of meetings held between the Ports of Antwerp and Rotterdam there was the 'feeling' that the received waste notification provided by ships was not always accurate. In order to confirm this opinion, research was carried out over a two month period in order to compare the notified waste data between ships sailing from Antwerp that indicated that the next port of call was Rotterdam and vice versa.

The enquiry showed that over 1 month 78 ships indicated to the Port Authorities the next port of call was Rotterdam. Out of those 78 only 29 did arrive in Rotterdam (37%), of which 24 notified the same amount of waste as to the authorities in Antwerp, the other 5 notified totally different amounts and types of waste. The other way around: out of 97 ships who sailed from Rotterdam, 20 ships did not physically arrive in Antwerp. Of the 77 ships that did, 62 notified more or less the same amounts and types of waste as when they sailed from Rotterdam.

The report by the Rotterdam Port Authorities said: "The "feeling" both authorities had was quantified and substantiated, which does not lead to optimism. Without a doubt, by way of risk assessment and the enforcement of waste notification, it will lead to a substantial improvement in the notification by the ships and

subsequently the ship's agent."

SOURCE: Rotterdam Port Authorities, 2008

3.4.3 Sub-standard ships

Twenty seven States in the North Atlantic region have signed the Paris Memorandum of Understanding (Paris MOU) and agreed to control visiting ships in their ports. If a ship has certain deficiencies, it has to be detained. However, the diffuse nature of marine litter pollution (and similarly oil pollution) makes prosecution of those who break existing laws extremely difficult, as there is rarely any evidence as to the source of the litter. Due to the lack of proof, convictions rarely occur, severely reducing the effectiveness of legislation (Lozano, 2009). Furthermore, since the chances of being caught are still relatively small and the fines low compared to the costs saved, some operators consider this a calculated risk. Through more effective inspections and strict enforcement these practices can be eliminated and there is perhaps an opportunity to learn more from other international regimes, such as in the US, where high profile convictions are more common.

3.4.4 Sub-standard ports

Along with inspecting ships, having checks in place to ensure that adequate PRFs are in place is crucial. Although ports are currently monitored by competent authorities at least every three years or after significant change in port operations with the aim of approving and re-approving facilities, monitoring has proven to be insufficient and there is no systematic re-approval process, nor a clear definition of 'significant change' (EMSA, 2010)⁴. Waste reception handling plans (WRHP) are not available in all ports, or the approved plan has expired (EMSA, 2010). They are mostly lacking in smaller ports, i.e. fishing/recreational. There appears to be a lack of overview/control of which ports need WRHP (and sometimes ports are exempted from developing WRHP).

July 2007, MEPC 56 issued circular MEPC/Circ.469/Rev.1 providing the latest amended form for reporting alleged inadequacies in reception facilities. In the last four years, IMO Secretariat has received an average of 26 reports of alleged inadequacies per year (over 40% of these being issued by a single flag State) (IMO, 2010). With 50,000 ships over 500GT in the world fleet, and assuming an average of 10 port calls per ship per year, there are half a million port calls per year (IMO, 2010). It is reasonable to assume that 26 reports is only the tip of the iceberg, since only a fraction of shipping companies take the effort to report. There should be a Europe wide reporting system, perhaps for stakeholders to report anonymously, and with a greater scope to take action if such inadequacies are proven.

3.4.5 Inadequate deterrents

In the EU it is the prerogative of the individual Member State to determine what the penalty (fine, imprisonment) should be for a ship caught, or suspected, of dumping waste at sea. In Europe there are several cases of ships being temporarily banned from entry for being sub-standard under the Paris MOU but very few tough penalties have been handed out. In contrast, in the US, substantial fines and cases of imprisonment have often been awarded to sub-standard ships. For example, the US cruise ship *Regal Princess* was fined \$US 500,000 (€336,600) in 1993 for dumping 20 bags of garbage in to the sea and earlier in 2011 the shipping company Cardiff Marine Inc. was sentenced to pay \$US 2.4 million (€1.7 million) for falsifying records of illegal discharges of oily waste. A system of fines for vessels caught with falsified record books, for example, should provide a disincentive to discharge illegally (Carpenter, 2001) and act as a genuine deterrent to dumping of litter items (OSPAR, 2009).

However, under the Directive there is no provision for port state control to check garbage record books nor the Oil Record Books. This is a stipulation of the Directive on Port State Control (2009/16/EC). However, under this directive there is no direction to verify whether the information detailed in either book correlates with the estimated quantities of garbage/oil on board the vessel. Here, it is clear that further guidance should be given as to what would entail an adequate inspection.

⁴ MEPC "Guidelines for ensuring the adequacy of port waste reception facilities" (resolution MEPC.83(44)) encourages port states to make use of a standard assessment format to conduct regular assessments of reception facilities in their ports.

4. Detailed recommendations on the review of the PRF Directive (and other associated instruments)

4.1 A clear, more uniform and fully implemented system across European ports

To ensure full implementation, Member States should be obliged to formulate detailed transposing measures and guidelines in accordance with the principles of the Directive. Uniform implementation is necessary in order to establish a level-playing field and prevent waste trafficking.

Firstly, there should be a clearer definition on what constitutes 'adequate' PRF. The Directive then has to set prescriptive standards or certification requirements for PRFs, so that the waste management systems of EU ports could be better assessed and evaluated. In addition, ships should not be deterred from discharging waste to PRF due to complicated procedures. Procedures therefore have to be clear and simple; definitions have to be in line with MARPOL.

4.2 Mandatory discharge of waste at reception facilities

Currently, exemptions are granted when there is sufficient storage capacity until the next port of delivery. However, it is highly likely that in many cases the rogue vessel operator will make use of this exemption in order to retain waste on board and dump it in open seas later during their voyage. To avoid this happening, and to keep things simple and clear, the Directive should insist on mandatory discharge for all ship-generated garbage before leaving port, applied to all ships, including all fishing vessels and recreational craft.

Being that it would be less practical to force all ships to discharge oily waste at each port of call, the following exception should be considered: ships involved in scheduled traffic with frequent and regular port calls (short sea shipping) and when there is sufficient evidence that a vessel does not routinely dump waste at sea (i.e. that it has consistently been proven in the past that a ship has discharged all its waste at a subsequent port and that evidence/notification is provided for the ship's immediate journey). See also recommendations on a Europe wide voucher scheme.

Finally, it should be made a mandatory requirement to enforce all ships bound for their next port of call outside of the EU to deliver both domestic waste items and oily waste, without exception.

4.3 The provision of adequate facilities to handle and recycle all types of waste

Ports should improve the availability and quality of facilities to collect oily waste and sewage, and ensure segregation and recycling of waste. Port authorities should also provide facilities for handling damaged or otherwise redundant fishing gear, and under this scenario the directive should also be extended to include all fishing vessels, irrespective of size or number of crew. It would also be effective here, in line with established 'fishing for litter' schemes, that the Directive should encourage states to provide free - or have the costs reduced - reception facilities for litter recovered at sea by fishing vessels.

4.4 Stricter control and enforcement through better and more frequent monitoring

This requires an overhaul of the current procedures regarding monitoring of on-board waste in EU ports. A far stricter system of Port State and Flag State control, in which ports and inspection authorities cooperate closely to check compliance is essential. Enforcement of ship waste management plans and rigorous inspections of garbage/oil record books should be carried out. Guidelines should be agreed and include checks on the adequacy of onboard oil pollution prevention equipment (oily water separators, storage and holding tanks, piping monitors), garbage record book, oily waste record keeping, and operating procedures (Camphuysen, 2007). This is only feasible if the EU and the Member States provide more means and personnel in order to carry out the necessary controls. IN addition to the review of the Directive, networks such as the North Sea Network of Investigators and Prosecutors, which currently try to harmonise evidence gathering and increase prosecutions for oil pollution, should also address ship-source waste items that make up marine litter and in the case of ships failing to meet the objectives of the Directive, Member States should be encouraged to award strong penalties through Directive 2005/35/EC on ship-source pollution and on the introduction of penalties for infringements.

4.5 Removal of direct fees for discharging waste

One of, if not the main reason for dumping waste at sea is the cost of discharging waste at a port reception facility. In consideration of this disincentive, a fundamental requirement to end ship waste dumping must involve removing the direct economic cost to a ship operator whilst ensuring that a ship abides by the 'polluter pays' principle. By incorporating the cost of PRF use in the general harbour dues which all ships pay (regardless of whether they use the PRFs) the economic disincentive to discharging waste at a PRF is removed. Such an approach, generally known as a "no-special-fee" system, is already in place in the Baltic Sea.

In utilising a No-Special-Fee there would have to be clear guidelines on which costs of waste handling and treatment should be covered in the port fee. The fee may be differentiated based on the types and quantities of waste delivered, and also the category, type, size and environmental performance of a ship.

Additionally some form of exemption or rebate on harbour dues may have to be implemented for ships making frequent, short journeys between ports, so they are not faced with a higher cost-burden. Differentiation in the fee system has to be fair, transparent, reflect costs, and made clear for port users.

Incorporating a No-Special-Fee would also require differentiation between oily waste and domestic waste. In this, for oily waste, it can be difficult at certain times to ensure that a waste removal provider is available or efficient enough in order to remove the waste without excessive delay. To combat this situation, if a ship was to leave a port without discharging their waste they should be issued with a disposal voucher (De Langen and Nijdam, 2008) by the Port State Control. In return of this voucher, the ship owner would pay the port authority a deposit for the estimated cost of removing the onboard waste. The ship owner would then be fully reimbursed once proof of disposal for all onboard waste in another European waste collection firm is ensured. A rebate system is currently utilised at the port of Antwerp. However, for such a system to be successful it would require a roll out across Europe.

Disposal Vouchers - synopsis from the study 'Charging Systems for Waste Reception Facilities in Ports and the Level Playing Field: A Case from North-West Europe' by De Langen and Nijdam, 2008

Vouchers obtained by a shipping company could be spent with any registered waste collection firm in any European port, with the indirect fee being set at a European level and at the same price for all European ports. This system would ensure a level playing field and that the burden on shipping lines would be low, because of 100 percent indirect charge. **The system is also commercially advantageous as shipping lines can dispose of waste at their port of choice.** Another advantage of such a system is that not all ports would have to invest in waste-reception facilities for Annex I (De Langen and Nijdam, 2008).

4.6 Better notification procedures between vessels, port authorities, waste operators and inspection agencies

Waste management requires close cooperation between different parties. Waste operators for instance need detailed information from vessels such as the type and the origin of the waste and other practical information. Ports and inspection authorities need to cooperate in order to identify non-compliance and detain sub-standard ships. To facilitate the information flow between vessels, shipping agent, port and inspection authorities, an efficient and user-friendly IT waste notification system is necessary.

4.7 Fishing vessels to report lost or abandoned fishing gear to the coastal state where the loss has occurred and to the state whose flag the ship is entitled to fly

Although not falling under the PRF Directive specifically, early and accurate reporting of lost gear improves the likelihood and effectiveness of recovery (Macfadyen et al, 2009) and since the 2011 adopted amendments to MARPOL, reporting of ADLFG is now required under international law. Reporting of gear loss could be integrated with catch reporting (e.g. logbooks) to additionally provide information on type, extent, position and depth. Especially fishing ports should endeavour to develop strategies to identify the location, source and types of fishing gear lost. A "no-blame" approach (with respect to liability for losses and their impacts and any related recovery

costs) should be used to ensure a high level of reporting. Once reported, the coastal state should take measures to recover the lost or abandoned gear.

4.8 Introduce mandatory educational programmes for seafarers to enhance knowledge and awareness of marine environmental issues.

Seafarers play an important role in the waste handling on ships. Training and education creates marine awareness among crew members, which greatly increases the willingness to handle garbage on board in a proper and environmentally-friendly way. They should not only be informed about marine issues but also environmental rules and regulations relating to vessel-based marine pollution. To this end, courses can be made mandatory as part of the IMO STCW Convention and form a part of any mariner's basic training along with issues such as safety and navigation (OSPAR, 2009). The ProSea Education Foundation has been leading the way in this field with the development of courses for the merchant navy and fishermen.

4.9 Economic incentives for clean shipping through fee differentiation

A system based solely on sanctions does not effectively stimulate improvements in the environmental performance of vessels. Furthermore, prevention is generally more effective and efficient than remedial action. Clean shipping should therefore be encouraged through positive (economic) incentives in order to tackle marine pollution at the source. For instance, clean ships should receive fee reductions if vessels can demonstrate a good environmental performance through an internationally accepted industry standards such as the Clean Shipping Index. This requires clear guidelines on what is considered a 'good environmental performance' and which documents have to be provided as evidence.

4.10. Port authorities should assume a more active and central role in the waste management regime

Port Authorities (and competent authorities appointed at national level) are responsible for securing the correct implementation of the provisions of the Directive. Operational ship waste handling can be outsourced, but port authorities should retain a central role in the overall management. Privatization and/or opening the market for all contractors is certainly not recommendable, since this may undermine the provision of high quality services at a fair price. Ports should select reliable and cost-effective operators and formulate a detailed contractual framework (or terms of reference) specifying the procedures, notification, cost recovery and payment. Furthermore, port authorities have to secure a competitive and fair price level for waste collection and treatment, by negotiating prices with operators and enabling fair competition (EMSA, 2005).

4.11 Member States must be obliged to report all waste delivered at PRFs

Reporting of the amount of waste delivered at port is crucial in order for adequate monitoring purposes and so as to better understand and clarify the effect of measures designed to incentivise the discharge of waste at PRFs. Currently, record keeping in this regard is poor in most ports across Europe and there is no binding obligation on MSs to report delivered waste. Without knowing for sure how much waste is delivered at a PRF, it will be impossible to know how much waste is being dumped at sea.

References

- Barnes D. K. A., 2005. *Remote Islands reveal rapid rise of Southern Hemisphere, sea debris*. Sci. World J. 5, 915–921.
- OSPAR Commission. 2000. Quality Status Report 2000. OSPAR Commission, London.
- Camphuysen C.J. 2007. *Chronic oil pollution in Europe, a status report*. Report Royal Netherlands Institute for Sea Research, commissioned by International Fund for Animal Welfare (IFAW), Brussels.
- Carlbro. 2005. *A Study on the Availability and Use of Port Reception Facilities for Ship-Generated Waste*. EMSA. Lisbon, Portugal.
- Carpenter, A. 2001. *Charging for port reception facilities in North Sea ports: putting theory into practice*. *Marine Pollution Bulletin* 42:257-66
- Carpenter, A., Macgill, SM 2005 *The EU Directive on port reception facilities for ship-generated waste and cargo residues: the results of a second survey on the provision and uptake of facilities in North Sea ports.*, *Mar Pollut Bull*, 50, pp.1541-1547.
- De Langen, P.W. and Nijdam, M.N. 2008. *Charging systems for Waste Reception Facilities in Ports and the Level Playing Field: A Case from North-West Europe*, *Coastal Management*, 36(1), pp. 109-124.
- EMSA. 2010 *Horizontal Assessment Report - Port Reception Facilities (Directive 2000/59/EC)*. Lisbon, Portugal.
- FOEI. 2008. *Marine litter and Port Reception Facilities*. Submission to the International Maritime Organisation's Marine Environment Protection Committee's 57th session, Agenda Item 8.
- GESAMP (IMO/FAO/UNESCO-IOC/UNIDO/WMO/IAEA/UN/UNEP Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection). 2007. *Estimates of oil entering the marine environment from sea-based activities*. Rep. Stud. GESAMP No. 75.
- Huhta, H.K., Rytkönen, J. & Sassi, J. 2007. *Estimated nutrient load from waste waters originating from ships in the Baltic Sea area*. VTT Tiedotteita . Research Notes 2370.
- KIMO International. 2010. *Economic Impacts of Marine Litter*. Shetland islands, UK.
- Macfadyen, G.; Huntington, T.; Cappell, R. 2009. Abandoned, lost or otherwise discarded fishing gear. *UNEP Regional Seas Reports and Studies* No.185; *FAO Fisheries and Aquaculture Technical Paper*, No. 523. Rome, UNEP/FAO.. 115p.
- Maes, F., Gonsaeles, G. & Buyse, A. 2000. *Studie van de afvalstromen afkomstig van de scheepvaart, binnenvaart en goederbehandeling in de havens van Antwerpen, Gent, Oostende en Zeebrugge*, Maritiem instituut Universiteit Gent
- Maffii, S. 2007. *External Costs and Climate Impacts of Maritime Transport*. Transport and climate change: A Greens/EFA conference. Bruxelles.
- Marine Log. 2011. *"Monkey business" with magic pipe costs Cardiff Marine \$2.4 million*. [Accessed on August 16] http://www.marinelog.com/index.php?option=com_content&view=article&id=549%3A2011feb002500&Itemid=107

OSPAR Commission. 2009. *Marine litter in the North-East Atlantic Region: Assessment and priorities for response*. London, United Kingdom.

Port of Rotterdam. 2008. Report on pilot "exchange waste notification data between Antwerp and Rotterdam"
Havenbedrijf Rotterdam n.v.

S.B. Sheavly and K.M. Register. 2007. *Marine Debris & Plastics: Environmental Concerns, Sources, Impacts and Solutions*. *Journal of Polymers and the Environment*. Volume 15, Number 4 / October, 2007, 301-305 pp.

Van Franeker, J.A. 2010. *Fulmar Litter EcoQO Monitoring in the Netherlands 1979-2008 in relation to EU Directive 2000/59/EC on Port Reception Facilities*. IMARES Report Nr C027/10. IMARES Wageningen UR.