



TECHNICAL REPORT

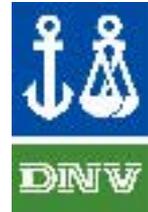
NORWEGIAN MARITIME DIRECTORATE

PORT RECEPTION FACILITIES IN THE PAME REGION

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DET NORSKE VERITAS



TECHNICAL REPORT

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Summary:

On behalf of the Norwegian Maritime Directorate (NMD), Det Norske Veritas (DNV) has been contracted to carry out the PAME (Protection of the Arctic Marine Environment) waste reception facility project. The objective of this project is to assess existing measures for port reception facilities for ship-generated waste and cargo residues, and, as a next phase, after further discussions in the PAME Working Group, to develop harmonized guidelines on waste reception facilities for member states for their consideration.

The first part of the project has been to identify the existing port reception facilities for ship-generated waste and cargo residues in the PAME region and what regulations and incentives for delivery each country has implemented. A simplified gap analysis has then been set up to identify gaps in existing reception provisions compared to the desired deliverance performance. Desired performance means when the port reception facilities are available and the ships deliver waste to the port. The outcome of the project is a general recommendation regarding the possible continuation of the study with the development of harmonized guidelines on waste reception facilities in the PAME region.

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1 INTRODUCTION

One of the objectives of PAME (Protection of the Arctic Marine Environment) is to prevent pollution from maritime activities. To achieve this objective, one action is to provide better protection of the marine environment against pollution by ships by enhancing the availability and use of port reception facilities for ship-generated waste and cargo residues.

On behalf of the Norwegian Maritime Directorate (NMD), Det Norske Veritas (DNV) has been contracted to carry out the PAME waste reception facility project. The objective of this project is to assess existing measures for port reception facilities for ship-generated waste and cargo residues, and, as a next phase, after further discussions in the PAME Working Group, to develop harmonized guidelines on waste reception facilities for member states for their consideration.

The first part of the project has been to identify the existing port reception facilities for ship-generated waste and cargo residues in the PAME region and what regulations and incentives for delivery each country has implemented. A simplified gap analysis has then been set up to identify gaps in existing reception provisions compared to the desired deliverance performance. Desired performance means when the port reception facilities are available and the ships deliver waste to the port. The outcome of the project is a general recommendation regarding the possible continuation of the study with the development of harmonized guidelines on waste reception facilities in the PAME region.

2 REGULATIONS

International, regional and local regulations are setting the framework for this study. An overview of important regulations concerning waste reception facilities is therefore given in this chapter.

2.1 Global regulation

2.1.1 MARPOL 73/78

The most important international convention related to control and management of pollution from ships is the International Convention for the Prevention of Pollution from ships 1973, as modified by the Protocol of 1978 relating thereto, also abbreviated MARPOL 73/78. The different annexes to this convention include regulations regarding waste reception facilities for the following waste types (Ref. /1/):

- Annex I: Oil
- Annex II: Noxious Liquid Substances (NLS)
- Annex IV: Sewage
- Annex V: Garbage
- Annex VI: Air Pollution

It should further be noted that Annex III to MARPOL 73/78, dealing with harmful substances carried in packaged form, in freight containers, portable tanks or similar, have no regulations with regard to waste reception facilities. Possible wastes associated to this annex would most probably be handled as garbage and hence be covered by Annex V.



Details about the regulations in the different MARPOL annexes are given in Appendix A.

2.1.2 Convention on prevention of marine pollution by dumping of waste and other materials (London Convention) 29 Dec. 1972

The Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972 (London Convention, Ref./18/) has up to now been the main international instrument for regulating the use of the sea as a depository for waste materials. From 2006, the 1996 Protocol to the Convention will enter into force and eventually replace the 1972 Convention. Both instruments will in practice be in force in parallel for some time, but the force will gradually shift to the Protocol as more Parties ratify it.

The 1972 Convention permits dumping to be carried out provided certain conditions are met, according to the hazards to the marine environment presented by the materials themselves. The 1972 Convention includes a "black list" of materials which may not be dumped at all.

The 1996 Protocol is more restrictive. It states (in Article 4) that Contracting Parties "shall prohibit the dumping of any wastes or other matter with the exception of those listed" (in Annex 1 to the Protocol). These listed materials include:

- Dredged material
- Sewage sludge
- Fish waste, or material resulting from industrial fish processing operations
- Vessels and platforms or other man-made structures at sea
- Inert, inorganic geological material
- Organic material of natural origin
- Bulky items primarily comprising iron, steel, concrete and similar harmless materials, for which the concern is physical impact, and limited to those circumstances where such wastes are generated at locations, such as small islands with isolated communities, having no practicable access to disposal options other than dumping.

The dumping of the matters listed in Annex 1 could be allowed after the issuance of a permit. Contracting Parties shall adopt administrative and legislative measures to ensure that issuance of such permits comply with the provisions set in Annex 2 to the Protocol. Among the important provisions and intentions of the 1996 Protocol is that such a permit only shall be issued if other waste management options are considered (by the permitting authority) inappropriate because of undue risks to human health or the environment or disproportionate costs, i.e. one is obligated to make further attempts to reduce the necessity of dumping.

2.2 Regional regulations

EU-directive (information taken from Ref. /12/)

Five of eight PAME countries are a part of the EU-regime. Denmark, Sweden and Finland are a part of EU, and Norway and Iceland are a part of the European Economic Area (EEA) Agreement and based on this agreement they have to act as a part of the EU-regime. Because of that reason, EU Directive 2000/59/EC of 27 November on port reception facilities for ship-generated waste and cargo residues has also been included in the study.



The aim of the Directive is to minimize the amount of waste discharged to sea. To meet this aim a regime of “no special fee” is implemented meaning that the vessel will be charged a waste handling port fee irrespective of delivery of waste. Exempt from this fee is the delivery of bilge, sludge and slop as well as hazardous materials. For these waste types a waste handling fee will be defined based upon amount of waste delivered.

The Directive shall apply to all ships, including fishing vessels and recreational craft, irrespective of their flag, calling at, or operating within a port of a Member State, with the exception of any warship, naval auxiliary or other ship owned or operated by a State and used, for the time being only on government non-commercial service. All ports of the member States normally visited by ships falling under the directive shall apply to this Directive, cf. article 3 in the Directive.

Member States shall ensure the availability of port reception facilities adequate to meet the needs of the ships normally using the ports without causing undue delay to ships. To achieve adequacy, the reception facilities shall be capable of receiving the types and quantities of ship-generated waste and cargo residues from ships normally using that port, taking into account the operational needs of the users of the port, the size and the geographical location of the port, the type of ships calling at that port and the exemptions provided for under Article 9 in the Directive.

The Directive outlines a regime of so-called “no special fee”. This means that the vessel will be charged a waste handling port fee irrespective of delivery of waste. Exempt from this fee is the delivery of bilge, sludge and slop as well as hazardous materials. For these waste types a waste handling fee will be defined based upon amount of waste delivered.

The Directive is now under revision.

2.3 National and local regulations

National and local regulations are regulations enforced by national authorities or by local port authorities and the regulations may therefore vary from country to country and within a given country.

In this project national and local regulations for the countries that are part of PAME have been mapped through questions to the authorities in the given countries. A summary of the answers are given in Chapter 3. Please note that very limited information has been received here.



3 PORT RECEPTION FACILITIES QUESTIONNAIRE

3.1 Electronic questionnaire

An electronic questionnaire was developed in order to identify existing port reception facilities for ship-generated waste and cargo residues. A letter was also prepared with additional questions to the authorities in each of the countries who are part of PAME. The questions were related to what regulations and incentives each respective country has implemented (ex. IMO, regional and local regulations/incentives). The letter and the electronic questionnaire were sent to representatives in the “Correspondence group on reception facilities in the PAME region” for further distribution to 5-10 representative ports in their respective countries. Copy of the letter and a printout of the electronic questionnaire are attached in Appendix D. The electronic questionnaire included 7 main sections:

1. Contact Details
2. Type of Vessel
3. Oily Waste
4. Noxious Liquid Substances
5. Sewage
6. Garbage
7. Ozone Depleting Substances/Exhaust Gas Residues.

3.2 Results from the questionnaire survey

In the following the results from the electronic questionnaire survey is presented for each country in alphabetical order. Ports from the following countries have answered the questionnaire: Canada, Faroe Islands, Greenland, Iceland and Norway. Russia and USA have not answered the electronic questionnaire and received information is therefore presented in a different way.

Following explanation is given to Table 3-1 to Table 3-5 . The tables are sorted in the same order as the annexes in MARPOL, i.e. Annex I to Annex VI:

- Column one indicates type of waste.
- Column two indicates % of ports replying that a given waste type is relevant in the port.
- Column three indicates % of ports answering that waste can be received. Only those answering that an actual type of waste is relevant with regard to waste reception facilities are accounted for (ref. column two).
- Column four indicates % of ports that are giving quantities on the different waste types. Again only those answering that an actual type of waste is relevant with regard to waste reception facilities is accounted for (ref. column two).
- Column five indicates reported waste quantities for 2004.
- Column six and seven indicate how satisfied the ports are with their waste reception facilities with reference to existing regulations. Again only those answering that an actual type of waste is relevant with regard to waste reception facilities is accounted for (ref. column two).



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3.2.1 Canada

Eight ports from Canada answered the electronic questionnaire. A selection of information from the answered questionnaires is summarised in Table 3-1.

Table 3-1 Canada – selection of information from answered questionnaires (8 ports).

Waste type	Relevant (%)	Waste can be received (%)	Quantity, 2004	
			% answer	tons
Oily tank washings	25	50	0	-
Dirty ballast water		50	0	-
Oily bilge water		100	0	-
Oil sludge		50	0	-
Used lubricating oil		50	0	-
Fuel residues		50	0	-

The ports assessment of the provision of Annex I waste reception facilities	% answer
Less than satisfactory	-
Satisfactory	100
Fully meets the requirements	-

Waste type	Relevant (%)	Waste can be received (%)	Quantity, 2004	
			% answer	tons
Category A	0	-	-	-
Category B		-	-	-
Category C		-	-	-
Category D		-	-	-

The ports assessment of the provision of Annex II waste reception facilities	% answer
Less than satisfactory	-
Satisfactory	-
Fully meets the requirements	-

Waste type	Relevant (%)	Waste can be received (%)	Quantity, 2004	
			% answer	tons
Black Water	37	100	0	-
Grey Water		100	0	-

The ports assessment of the provision of Annex IV waste reception facilities	% answer
Less than satisfactory	-
Satisfactory	100
Fully meets the requirements	-

Waste type	Relevant (%)	Waste can be received (%)	Quantity, 2004	
			% answer	tons
Plastics	75	66	0	-
Floating dunnage, lining, or packing		66	0	-
Ground down paper products, rags, glass, metal, bottles, crockery, etc.		66	0	-
Paper products, rags, glass, metal, bottles, crockery, etc.		66	0	-
Food waste		66	0	-
Incinerator		66	0	-

The ports assessment of the provision of Annex V waste reception facilities	% answer
Less than satisfactory	-
Satisfactory	66
Fully meets the requirements	-

Waste type	Relevant (%)	Waste can be received (%)	Quantity, 2004	
			% answer	tons
Ozone depleting substances	0	-	-	-
Exhaust gas residues		-	-	-

The ports assessment of the provision of Annex VI waste reception facilities	% answer
Less than satisfactory	-
Satisfactory	-
Fully meets the requirements	-

Comments to the table:

- Two of eight ports indicate that oily waste is relevant with regard to waste reception facilities. In general (except oily bilge water) only one of these ports can receive oily waste. However no ports reported quantities for 2004. Both ports who found oily waste relevant respond that the status with regard to reception facility is “satisfactory”.



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- Three of eight ports indicate that sewage is relevant and all three can receive sewage. However no ports reported quantities for 2004. All three ports who found sewage relevant respond that the status with regard to reception facility is “satisfactory”.
- Six of eight ports indicate that garbage is relevant and four of these indicate that they can receive garbage. However no ports reported quantities for 2004. Four of the six ports who found garbage relevant respond that the status with regard to reception facility is “satisfactory”.
- Noxious liquid substances (Annex II waste) and ozone depleting substances and exhaust gas residues (Annex VI waste) are reported not to be relevant in the included Canadian ports.

The response from the authorities in Canada (Ref. /6/) is that regulations applicable to the PAME area are contained in the Arctic Waters Pollution Prevention Regulations (Ref. /7/). Transport Canada has currently commissioned a feasibility study on implementing the adequacy of marine waste reception facilities in Canada. The two phased study will be completed in 2006 with entering data on Marine Waste Reception Facilities into a database provided by Transport Canada.



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3.2.2 Faroe Islands

Seven ports from Faroe Islands answered the electronic questionnaire. A selection of information from the answered questionnaires is summarised in Table 3-2.

Table 3-2 Faroe Islands – selection of information from answered questionnaires (7 ports).

Waste type (Annex I waste)	Relevant (%)	Waste can be received (%)	Quantity, 2004	
			% answer	tons
Oily tank washings	100	29	14	0
Dirty ballast water		43	14	0
Oily bilge water		100	14	0
Oil sludge		86	29	100
Used lubricating oil		86	57	200
Fuel residues		71	29	100

The ports assessment of the provision of Annex I waste reception facilities	% answer
Less than satisfactory	-
Satisfactory	14
Fully meets the requirements	43

Waste type (Annex II waste)	Relevant (%)	Waste can be received (%)	Quantity, 2004	
			% answer	tons
Category A	29	50	0	-
Category B		0	0	-
Category C		0	0	-
Category D		0	0	-

The ports assessment of the provision of Annex II waste reception facilities	% answer
Less than satisfactory	-
Satisfactory	-
Fully meets the requirements	50

Waste type (Annex IV waste)	Relevant (%)	Waste can be received (%)	Quantity, 2004	
			% answer	tons
Black Water	29	100	0	-
Grey Water		100	0	-

The ports assessment of the provision of Annex IV waste reception facilities	% answer
Less than satisfactory	-
Satisfactory	-
Fully meets the requirements	50

Waste type (Annex V waste)	Relevant (%)	Waste can be received (%)	Quantity, 2004	
			% answer	tons
Plastics	100	100	14	100
Floating dunnage, lining, or		100	14	500
Ground down paper products, rags, glass, metal, bottles, crockery, etc.		100	29	200
Paper products, rags, glass, metal, bottles, crockery, etc.		100	14	200
Food waste		100	14	300
Incinerator		71	0	-

The ports assessment of the provision of Annex V waste reception facilities	% answer
Less than satisfactory	-
Satisfactory	14
Fully meets the requirements	43

Waste type (Annex VI waste)	Relevant (%)	Waste can be received (%)	Quantity, 2004	
			% answer	tons
Ozone depleting substances	0	-	-	-
Exhaust gas residues		-	-	-

The ports assessment of the provision of Annex VI waste reception facilities	% answer
Less than satisfactory	-
Satisfactory	-
Fully meets the requirements	-

Comments to the table:

- Seven of seven ports indicate that reception facilities for oily waste is relevant, however the reception ability varies from 30-100 %. For e.g. oily bilge water only 1 port has reported



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quantities for 2004 and the reported number is nil. One of seven ports who found oily waste relevant respond that the status with regard to reception facility is “satisfactory” while three of seven ports respond that it “Fully meets the requirements”.

- Two of seven ports find noxious liquid substances and sewage relevant, but no quantities are reported.
- Seven of seven ports found garbage relevant and the total quantity reported is 1,300 tons. Four of seven ports find the status to be “satisfactory” or “fully meets the requirements”.
- Ozone depleting substances and exhaust gas residues (Annex VI waste) is reported to not be relevant in the included Faroe Islands ports.

The response from the authorities in the Faroe Islands (Ref. /8/) is that the Faroe Islands have ratified the MARPOL convention and annexes I - V. Annex VI have not yet been ratified, but this will be done shortly. The Faroese authorities took over the administration of the marine environment from the Danish government in 2002. In 2005 the new Marine Environmental Act, Governmental Act. no. 59 from 17-05-2005 on Protection of the Marine Environment, was put in force. The act implements e.g. the MARPOL convention and other conventions. Three executive orders on garbage, oil and sewage respectively were put in force on 01.12.2005. These are:

- Order on discharge of garbage from ships, implementing annex V
- Order on discharge of sewage from ships, implementing annex IV and
- Order on discharge of oil from ships, implementing annex I

There are two executive orders in force regarding reception facilities in Faroese harbours:

- Order no. 20 from 08-04-1987 on reception facilities for oil, sewage and garbage in Faroese harbours, and
- Order nr. 33 from 08-03-2001 on reception facilities for noxious liquid substances in Faroese harbours.

The Faroe Islands are working on revising the orders on reception facilities. The new order will e.g. have provisions on reception facilities for ozone depleting substances and exhaust gas residues. The authorities in the Faroe Islands expect the order to be put in force early 2006.



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3.2.3 Greenland

Five ports from Greenland answered the electronic questionnaire. A selection of information from the answered questionnaires is summarised in Table 3-3.

Table 3-3 Greenland – selection of information from answered questionnaires (5 ports).

Waste type	Relevant (%)	Waste can be received (%)	Quantity, 2004	
			% answer	tons
Oily tank washings	100	0	0	-
Dirty ballast water		0	0	-
Oily bilge water		0	0	-
Oil sludge		100	0	-
Used lubricating oil		100	0	-
Fuel residues		0	0	-

The ports assessment of the provision of Annex I waste reception facilities	% answer
Less than satisfactory	0
Satisfactory	100
Fully meets the requirements	0

Waste type	Relevant (%)	Waste can be received (%)	Quantity, 2004	
			% answer	tons
Category A	0	-	-	-
Category B		-	-	-
Category C		-	-	-
Category D		-	-	-

The ports assessment of the provision of Annex II waste reception facilities	% answer
Less than satisfactory	-
Satisfactory	-
Fully meets the requirements	-

Waste type	Relevant (%)	Waste can be received (%)	Quantity, 2004	
			% answer	tons
Black Water	0	-	-	-
Grey Water		-	-	-

The ports assessment of the provision of Annex IV waste reception facilities	% answer
Less than satisfactory	-
Satisfactory	-
Fully meets the requirements	-

Waste type	Relevant (%)	Waste can be received (%)	Quantity, 2004	
			% answer	tons
Plastics	0	-	-	-
Floating dunnage, lining, or packing		-	-	-
Ground down paper products, rags, glass, metal, bottles, crockery, etc.		-	-	-
Paper products, rags, glass, metal, bottles, crockery, etc.		-	-	-
Food waste		-	-	-
Incinerator		-	-	-

The ports assessment of the provision of Annex V waste reception facilities	% answer
Less than satisfactory	-
Satisfactory	-
Fully meets the requirements	-

Waste type	Relevant (%)	Waste can be received (%)	Quantity, 2004	
			% answer	tons
Ozone depleting substances	0	-	-	-
Exhaust gas residues		-	-	-

The ports assessment of the provision of Annex VI waste reception facilities	% answer
Less than satisfactory	-
Satisfactory	-
Fully meets the requirements	-

Comments to the table:

- Five of five ports indicate that reception facilities for oily waste is relevant, however no quantities are reported for 2004. All ports respond that the status with regard to reception facility is “satisfactory”.
- NLS, sewage, garbage and ozone depleting substances and exhaust gas residues is reported to not be relevant in the included ports of Greenland.



The response from the authorities in Greenland (Ref. /5/) is that Greenland at the moment has reception facilities for oily waste, sewage and garbage, but that they not yet have focused on reception facilities for noxious liquid substances and ozone depleting substances and exhaust gas residues. The feedback from Greenland is also that they are trying to upgrade the ports so that they live up to the MARPOL standard - but that Greenland is “not quite there yet”.



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3.2.4 Iceland

Seven answers have been received from Iceland. One of these is given by Associated Icelandic Ports (Reykjavík - Grundartangi - Akranes – Borgarnes) which includes four ports. The total number of ports is therefore ten. A selection of information from the answered electronic questionnaires is summarised in Table 3-4.

Table 3-4 Iceland – selection of information from answered questionnaires (10 ports).

Waste type	Relevant (%)	Waste can be received (%)	Quantity, 2004*	
			% answer	tons
Oily tank washings	60	67	67	0
Dirty ballast water		67	67	0
Oily bilge water		83	83	73
Oil sludge		83	83	110
Used lubricating oil		100	100	160
Fuel residues		100	100	115

Waste type	Relevant (%)	Waste can be received (%)	Quantity, 2004	
			% answer	tons
Category A	40	100	0	-
Category B		100	0	-
Category C		100	0	-
Category D		100	0	-

Waste type	Relevant (%)	Waste can be received (%)	Quantity, 2004	
			% answer	tons
Black Water	40	100	0	-
Grey Water		100	0	-

Waste type	Relevant (%)	Waste can be received (%)	Quantity, 2004	
			% answer	tons
Plastics	100	100	60	-
Floating dunnage, lining, or packing		100	60	-
Ground down paper products, rags, glass, metal, bottles, crockery, etc.		100	60	-
Paper products, rags, glass, metal, bottles, crockery, etc.		100	60	-
Food waste		100	60	-
Incinerator		80	60	-

Waste type	Relevant (%)	Waste can be received (%)	Quantity, 2004	
			% answer	tons
Ozone depleting substances	0	-	-	-
Exhaust gas residues		-	-	-

The ports assessment of the provision of Annex I waste reception facilities	% answer
Less than satisfactory	-
Satisfactory	100
Fully meets the requirements	-

The ports assessment of the provision of Annex II waste reception facilities	% answer
Less than satisfactory	-
Satisfactory	-
Fully meets the requirements	100

The ports assessment of the provision of Annex IV waste reception facilities	% answer
Less than satisfactory	-
Satisfactory	100
Fully meets the requirements	-

The ports assessment of the provision of Annex V waste reception facilities	% answer
Less than satisfactory	-
Satisfactory	90
Fully meets the requirements	-

The ports assessment of the provision of Annex VI waste reception facilities	% answer
Less than satisfactory	-
Satisfactory	-
Fully meets the requirements	-

*Associated Icelandic Ports (Reykjavík - Grundartangi - Akranes - Borgarnes) has reported that sum of all waste oil received in 2004 was 1,773 tons. This sum is not included in the table since it is not possible to split up the number into different waste categories based on available information.

Comments to the table:

- Six of ten ports indicate that reception facilities for oily waste is relevant, however the reception ability varies. For e.g. oily bilge water five of these six ports have reported that



they have received this type of waste and the total quantity reported is 73 tons. All ports who found oily waste relevant respond that the status with regard to reception facility is “satisfactory”. The total reported quantity of oily waste is 2,231 tons.

- Four of ten ports find NLS and sewage relevant, but no quantities are reported.
- Ten of ten ports found garbage relevant, six of these have reported quantities for 2004, but the reported number is nil. Nine of ten ports find the status to be “satisfactory”.
- Ozone depleting substances and exhaust gas residues (Annex VI waste) is reported to not be relevant in the included Iceland ports.

No specific comments have been received from Iceland authorities regarding what regulations and incentives the country has implemented.



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3.2.5 Norway

Four ports from Norway answered the electronic questionnaire. A selection of information from the answered questionnaires is summarised in Table 3-5.

Table 3-5 Norway – selection of information from answered questionnaires (4 ports).

Waste type	Relevant (%)	Waste can be received (%)	Quantity, 2004	
			% answer	tons
Oily tank washings	75	100	33	-
Dirty ballast water		100	33	-
Oily bilge water		100	33	-
Oil sludge		100	33	10
Used lubricating oil		100	33	10
Fuel residues		100	33	-

The ports assessment of the provision of Annex I waste reception facilities	% answer
Less than satisfactory	-
Satisfactory	66
Fully meets the requirements	-

Waste type	Relevant (%)	Waste can be received (%)	Quantity, 2004	
			% answer	tons
Category A	0	-	-	-
Category B		-	-	-
Category C		-	-	-
Category D		-	-	-

The ports assessment of the provision of Annex II waste reception facilities	% answer
Less than satisfactory	-
Satisfactory	-
Fully meets the requirements	-

Waste type	Relevant (%)	Waste can be received (%)	Quantity, 2004	
			% answer	tons
Black Water	75	100	33	1
Grey Water		100	33	1

The ports assessment of the provision of Annex IV waste reception facilities	% answer
Less than satisfactory	-
Satisfactory	66
Fully meets the requirements	-

Waste type	Relevant (%)	Waste can be received (%)	Quantity, 2004	
			% answer	tons
Plastics	100	100	0	-
Floating dunnage, lining, or packing		100	0	-
Ground down paper products, rags, glass, metal, bottles, crockery, etc.		100	0	-
Paper products, rags, glass, metal, bottles, crockery, etc.		100	0	-
Food waste		100	0	-
Incinerator		100	0	-

The ports assessment of the provision of Annex V waste reception facilities	% answer
Less than satisfactory	-
Satisfactory	75
Fully meets the requirements	25

Waste type	Relevant (%)	Waste can be received (%)	Quantity, 2004	
			% answer	tons
Ozone depleting substances	0	-	-	-
Exhaust gas residues		-	-	-

The ports assessment of the provision of Annex VI waste reception facilities	% answer
Less than satisfactory	-
Satisfactory	-
Fully meets the requirements	-

Comments to the table:

- Three of four ports indicate that oily waste is relevant with regard to waste reception facilities and all three ports can receive oily waste. Only one port reported quantities for 2004. Two of three ports who found oily waste relevant respond that the status with regard to reception facility is “satisfactory”.



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- Three of four ports indicate that sewage is relevant and all three can receive sewage. However only one port reported quantities for 2004. Two of three ports who found sewage relevant respond that the status with regard to reception facility is “satisfactory”.
- All four ports indicate that garbage is relevant and that they can receive garbage. However no ports reported quantities for 2004. Three of the four ports who found garbage relevant respond that the status with regard to reception facility is “satisfactory”. The fourth port responds the status to “fully meets the requirements”.
- Noxious liquid substances (Annex II waste) and ozone depleting substances and exhaust gas residues (Annex VI waste) is reported to not be relevant in the included Norwegian ports.

Norway is a part of the European Economic Area (EEA) Agreement and based on this agreement Norway has to act as a part of the EU-regime. The EU directive 2000/59/EC of 27 November on port reception facilities for ship-generated waste and cargo residues is adopted in Norway through the regulation “Forskrift om begrensning av forurensning (forurensningsforskriften)” i.e. Regulation on limitation of pollution (Pollution control regulation). Chapter 20 in this regulation is concerning “Delivery and reception of waste and cargo residues from vessels”.

3.2.6 Russia

No Russian ports have answered the electronic questionnaire, neither has any specific information (in English) regarding national and local regulation and incentives been received.

For Russia information provided through the former IMO-database on port reception facilities was used with the consent of Russian maritime authorities (Ref. /3/). Note that only information about reception facilities for oily waste is available through this source. The information is attached in Appendix A. As can be seen from the information Arkhangelsk Authority of Sea Port can only accept “Scale and sludge from tanker cleaning” and “Oily bilge water” while the Murmansk Authority of Sea Port can receive “Dirty ballast water”, “Tank Washings (slops)”, “Scale and sludge from tanker cleaning”, “Oily bilge water” and “sludge from fuel oil purifier”. No information exists on which ports included in Appendix A that are PAME ports. In general all ports can accept some kind of oily wastes but only three of nineteen ports can accept all kinds of oily wastes.

Some information has also been received from the Russian representative in the Correspondence group on reception facilities in the PAME region (Ref. /2/), however in Russian only.

No specific comments have been received from Russian authorities regarding what regulations and incentives the country has implemented.

3.2.7 United States

No ports from United States have answered the electronic questionnaire, neither has any specific information regarding national and local regulation and incentives been received.

The following information has been provided by United States Coast Guard (USCG) (Ref. /4/) to address Port Reception facilities in the PAME region.

**Table 3-6 Information received about PAME ports from USCG (Ref. /4/).**

Port	Information on waste reception facilities
Prudhoe	No Certificate of Adequacy (COA*). The port does not receive foreign vessels or vessels over 400GT
Kotzibu - <u>Kotzebue</u> .	No COA. The port does not receive foreign vessels or vessels over 400GT
Nome	Has garbage COA only, and does not include oil reception. Does not have vessels over 400GT, only occasional small foreign cruise ships.
Bethel	Has garbage COA only, and does not include oil reception. Located on river system and does not receive U.S. vessels over 400GT or foreign vessels.
St. Paul	Has garbage and oil COA. Receives a couple of foreign cruise ships (although they do not dock) and has some fish processor arrivals.
Dillingham	Has garbage COA, and does not include oil reception. No vessels or U.S. ocean going vessels over 400GT. Facility does receive seafood processors.
Mackinac (assumed to mean Point MacKenzie)	Has garbage and oil COA. Receives large wood chip ships.
Dutch Harbour (Unalaska)	Has garbage and oil COA. Receives vessels of all kinds also those that have fish processing.
Adak	Has both garbage and oil COA. Receives foreign tankers over 400GT.
Shermia (assumed to mean <u>Shemya</u>)	No garbage or oil COA. This is a military facility at the far end of the Aleutian chain. Only receives oil for base/flight operations. No foreign or over 400GT vessels.

*Note: COA – Certificate of Adequacy. USCG has issued “A guide to waste management practices for shipping agents, waste haulers, shipping companies and port and terminal operators” where COA’s are described. COA documents are issued by the Coast Guard and certify that a port or terminal meets the requirements of a reception facility required under MARPOL 73/78.

As can be seen from Table 3-6 many of the reported USA ports have a Certificate of Adequacy certifying that the given port or terminal meets the requirements of a reception facility required under MARPOL 73/78. As also can be seen from the table several of the ports that have a COA only have reception facilities for oil and waste which must indicate that there is no need for reception facilities for other kinds of waste in these ports. This also emphasises that several of the ports in the PAME region does not necessarily need reception facilities for all kinds of waste.



4 SIMPLIFIED GAP ANALYSIS

The following section gives an overall status of the as is situation in the PAME ports based on replies from the ports in the different countries (see Chapter 3.2). Since the received information has been limited, the conditions in the PAME region has also been overall assessed based on other type of information. This has been visualised by plotting the geographical placement of PAME ports (those that have answered the electronic questionnaire) versus natural conditions as ice and permafrost. In addition sailing activity in parts of the region is illustrated. A simplified gap analysis is then set up to identify gaps in the as is situation compared to the desired deliverance performance. Desired performance means when the port reception facilities are available and the ships deliver waste to the port. Note again that limited information has been available to do the above described work.

4.1 Status

Based on answers from the electronic questionnaire the following status can be outlined.

Oily waste: All countries that have answered the electronic questionnaire find reception facilities for oily waste to be relevant, however reported relevance varies between 25 -100 %. Only three countries have reported quantities for 2004. In general the countries assess their reception facilities to be “satisfactory”.

Noxious Liquid Substances waste: Reported relevance varies between 0 and 40 %. No quantities are reported. The countries assessment of their reception facilities varies from “fully meets the requirements” to no information given. It should be noted that noxious liquid substances waste is relevant only in ports where NLS are unloaded and that this is not relevant in most PAME ports.

Sewage: Reported relevance varies between 0 and 75 %. Only one country reported quantities. The countries assessment of their reception facilities varies from “fully meets the requirements” to no information given.

Garbage: Reported relevance varies between 0 and 100 %. Only one country has reported quantities for 2004. The countries assessment of their reception facilities varies.

Ozone depleting substances and exhaust gas residues: Reported relevance is 0 %. It should be noted that reception facilities for ozone depleting substances shall be available in repair ports while reception facilities for exhaust gas cleaning residues shall be available in ports, terminals or repair ports, ref. MARPOL, Annex VI, Reg. 17(1). It is likely that reception facilities for this kind of waste are not relevant for many of the PAME ports included in this study.

In general it should be noted that even though many ports have not reported quantities for 2004 this does not necessarily mean that no quantities are received. One explanation is that no requirements to ship waste statistics have been implemented and that the ports therefore do not have such records. In general it should also be noted that the ports assess their situation to either be “satisfactory” or “fully meets the requirements”.



The above comments about status do not include the results from Russia and USA since the ports from these countries did not respond on the specific electronic questionnaire. USA has introduced a system with Certificates of Adequacy and based on received information it seems as if the situation in the specific ports is good. For Russia the only available information is the information from the IMO-database on port reception facilities which indicates that all the listed ports can receive some kind of oily waste.

If also the general comments received from the authorities in the different countries are included (not all countries have responded on this) it seems as most of the PAME countries still see some challenges with regard to the provision of adequate waste reception facilities.

Reliable data is provided through the electronic questionnaire filled in by the different ports that have responded, and the data quality is generally considered as good. In cases where the electronic questionnaire is not used, the amount of information and level of detail varies.

4.2 Geographical placement of PAME ports

In order to carry out the simplified gap-analysis, the different ports that have answered the electronic questionnaire have been plotted on a map covering the actual PAME region, see Figure 4-1. Note that ports that have not answered the electronic questionnaire are not included on the map, i.e. ports from Russia and USA.

Ice conditions play a major role in these areas and therefore ice conditions are visualised in the same figure (Ref. /19/). Light blue indicates maximum ice edge on April 1st 2005 while darker blue indicates minimum ice edge on September 1st 2005. Ice edges are given to illustrate ice challenges, and thereby traffic challenges, in the given region at certain periods of the year.

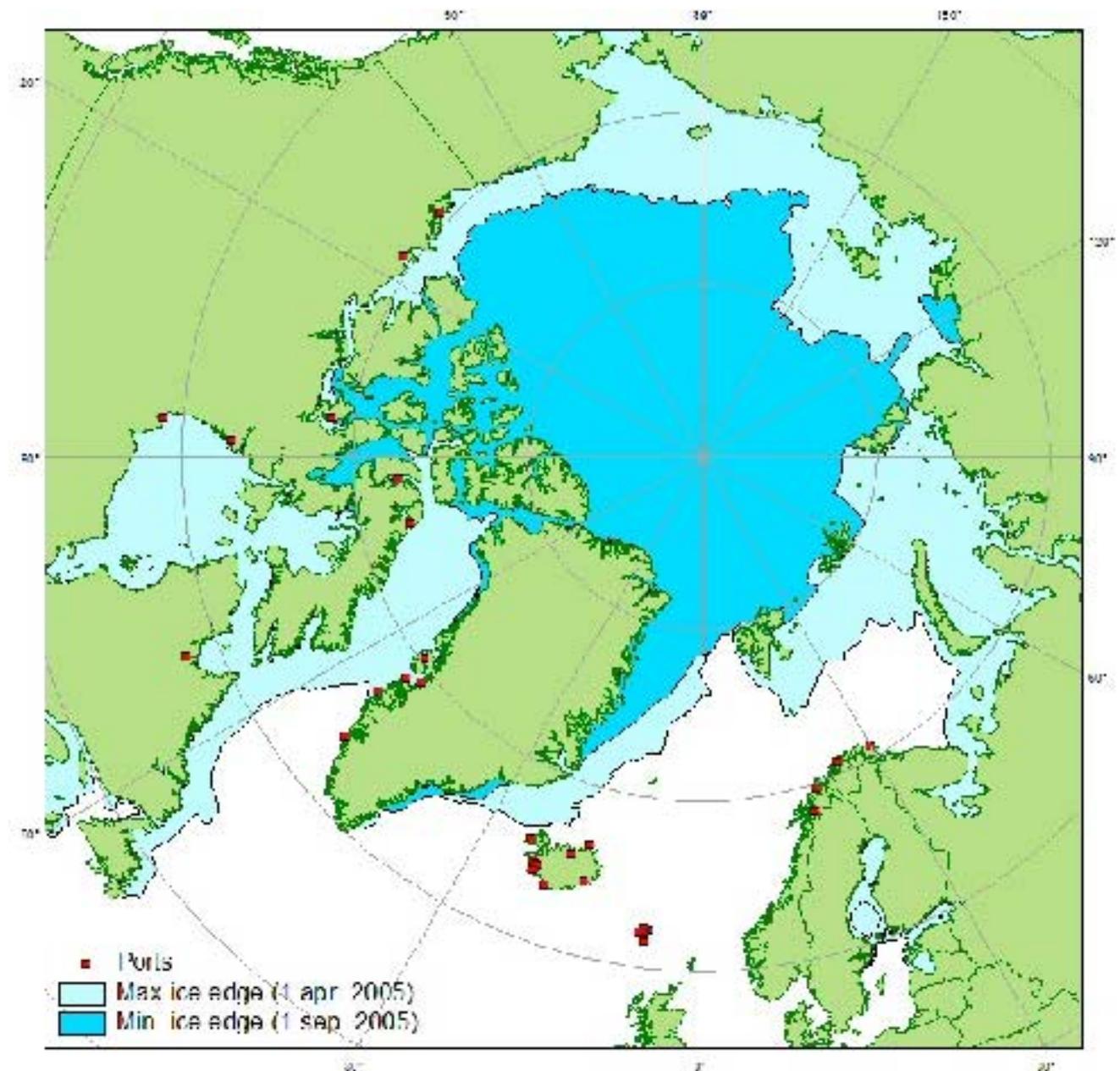


Figure 4-1 Map covering the PAME region. Ports that have answered the electronic questionnaire are marked with a red point. Light blue indicates maximum ice edge (April 1st 2005) while darker blue indicates minimum ice edge (September 1st 2005), (Ref. /19/).

As can be seen from Figure 4-1 many of the ports in Canada and Greenland may have challenges with ice when the ice edge is at its maximum. One port in Canada may even have challenges with ice when the ice edge is at its minimum.

A permafrost map may illustrate these extreme conditions even more. Figure 4-2 indicates the permafrost conditions in the actual region (Ref. /11/). As can be seen from the figure some of the included ports have continuous permafrost conditions while others have discontinuous

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permafrost conditions. Permafrost conditions may make storage of ship waste a bigger challenge than in areas without permafrost.

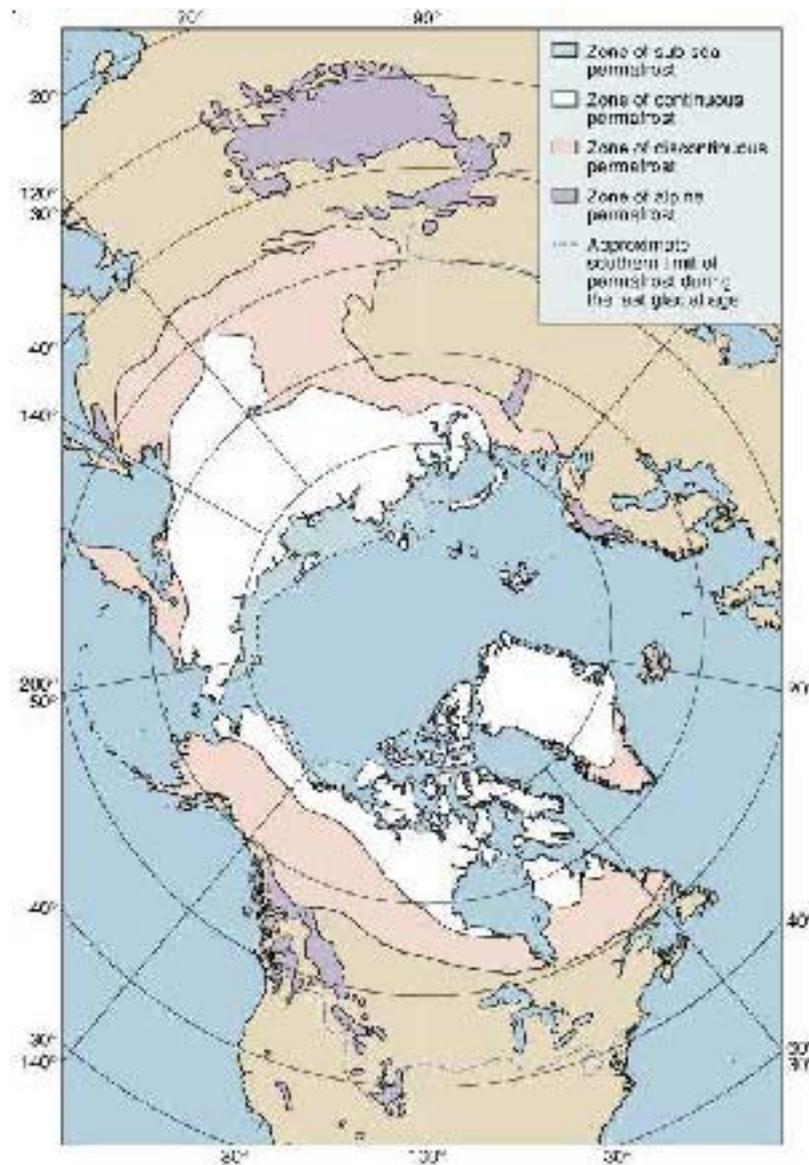


Figure 4-2 Permafrost conditions in the actual area (Ref. /11/).

The ice and permafrost conditions pointed out above are illustrated in order to demonstrate some of the challenges in the given area. Together with long distances and less populated areas these challenges indicate complexities in establishing systems for ship waste reception facilities.

These challenges have also been addressed earlier e.g. in the International Northern Sea Route Programme (Ref. /17/). In the summary of Working Paper “Guide for Ship-generated Waste Management on the Northern Sea Route” it is concluded that “...in the Arctic there are very restricted possibilities of taking advantage of the experience related to handling of wastes which is used in other regions. For example, there is no possibility of reuse of lubricating oils. In this



connection there is no need to collect separately different kinds of oily residues and wastes". It is further concluded the necessity to "...utilize wastes to maximum extent and provide their reuse on board".

4.3 Ship traffic in the PAME region

An indication of activity level and thereby need for reception facilities could be the ship traffic in the PAME region. In this limited project it has not been possible to investigate ship traffic in detail for all areas included in the study. However, as an example the situation in the area Lofoten-Barentshavet has recently been addressed in several projects and therefore data from this area is readily available.

Ship traffic in the Lofoten-Barentshavet area is dominated by cargo traffic (wet/dry bulk, container, other mixed cargo etc.), cruise traffic, fishing activities and transit transport of oil from Russia to the European market (Ref. /9/).

The cargo traffic in the ports from Bodø to Kirkenes constituted in year 2002 close to 9 % of the total cargo carried on sea in Norway. Table 4-1 lists the ports in this area and the total tons handled in year 2002 (Ref. /9/). As can be seen there is relatively much traffic in these ports with the port of Narvik as the largest one (mainly related to transport of iron ore).

Table 4-1 Cargo traffic in ports from Bodø to Kirkenes (Ref. /9/).

Port	Total tons handled in year 2002
Narvik	13,000,831
Tromsø	720,693
Bodø	593,198
Alta	550,199
Hammerfest	452,574
Sortland	276,163
Lødingen	273,280
Hadsel	226,570
Øksnes	209,976
Vadsø	166,160
Sørvaranger	155,479
Vågan	125,000
Andøy	72,039
Havøysund	34,730
Harstad	33,666
Vardø	26,304
Loppa	5663

Figure 4-3 indicates number of calls in port from overseas cruise vessels to some of the most important ports in the actual area (Lofoten-Barentshavet), (Ref. /9/). As can be seen from the figure, numbers of calls in port is exceeding 100 calls for the most visited ports.

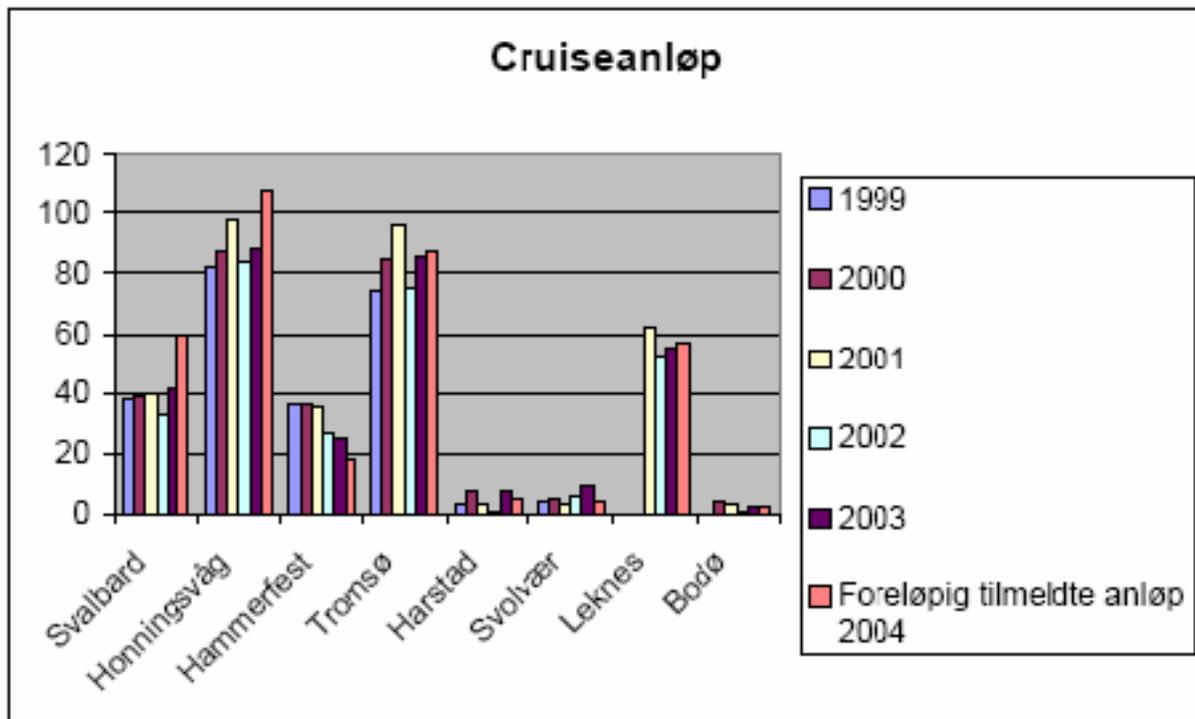


Figure 4-3 Number of calls in port from overseas cruise vessels to some of the most important ports in the actual area. 2004 numbers are estimates (Ref. /9/).

In the actual area there is also considerable fishing activity. Figure 4-4 indicates sailing activity for Norwegian and foreign fishing vessels in the area north of Lofoten and the Barents Sea in February month 2001. For year 2003 it has been estimated that the fishing activity constitutes as much as 61 % of the ship traffic in the area Lofoten-Barentshavet (Ref. /9/).

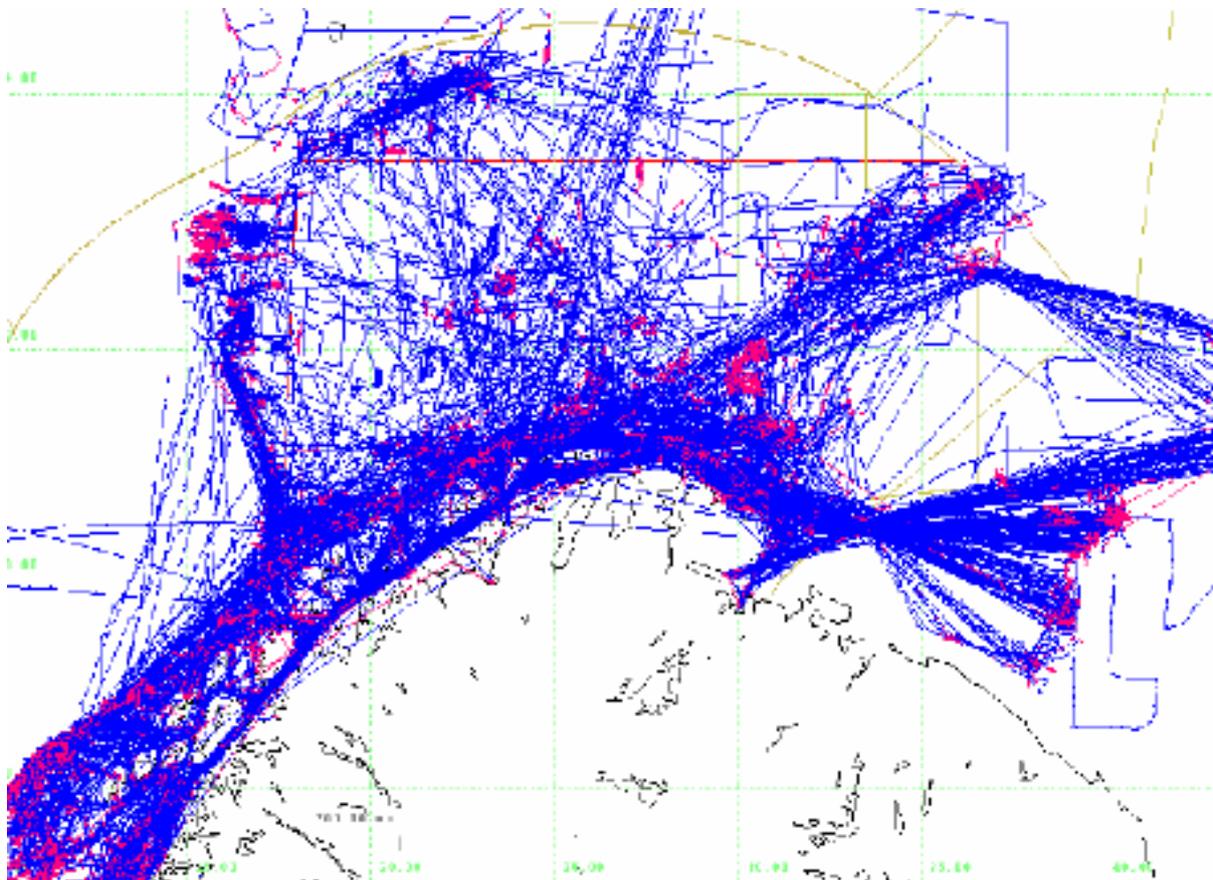


Figure 4-4 Sailing activity for Norwegian and foreign fishing vessels in the area north of Lofoten and the Barents Sea in February month 2001 (Ref. /9/).

There is also considerable transport of oil from the ports of Varanday, Kolgojev, Archangelsk and Vito in Russia. The oil is transported in shuttle tankers to the fjord of Murmansk where the oil is loaded onto larger tankers for further transport to Europe. In the actual area it is therefore the shipment ports in Russia (and possible reloading ports in Norway) that need reception facilities for this type of traffic. Figure 4-5 indicates the ports of shipment and shipping routes for Russian oil traffic (Ref. /9/).



Figure 4-5 Port of shipment and sailing routes for Russian oil traffic (Ref. /9/).

In addition to the above mentioned ship types there is also a military activity in the area Lofoten-Barentshavet. This activity includes activity from the Norwegian side by the Coastguard and the Norwegian Navy. From Russian side there is also considerable activity. However no indication of activity level from military activities has been available to this project.

The above overall analyses of the traffic situation in the Norwegian PAME ports demonstrate that there are great variations in sailing activity and sailing type in the actual area. This indicates the need for variations in type and scale of waste reception facilities.

A brief look is also taken into the situation in Canada based on information received from Canadian authorities (Ref. /6/). Transport Canada has earlier carried out studies on waste reception facilities and from one of these studies (Ref. /10/), the average total annual cargo tonnages for some of the selected Canadian PAME ports are available. The numbers represents the sum of total international cargo, international liquid bulk cargo, total domestic cargo and domestic liquid bulk cargo. The numbers are presented in Table 4-2. As can be seen from the table the activity in the listed ports varies much and is limited e.g. when compared with the Norwegian ports included in the study (see e.g. Table 4-1). Limited activity indicates limited



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need for reception facilities. However facilities need to be available to serve the vessels calling the ports.

Table 4-2 Average total annual cargo tonnage from ports in Canadian waters (Ref. /10/).

Port	Average total annual cargo tonnage
Gjoa Haven	-
Pond Inlet	-
Rankin Inlet	-
Paulatuk	-
Nanasivik	35,000 - 95,000
Tuktoyaktuk	10,000 - 70,000
Kuujuuaq	-
Churchill	420,000 - 550,000

-: Data not included in available documentation

Similar and more detailed considerations could be done for the other PAME countries included in this study. Within this limited project this has not been possible. It is however likely that similar variation will be found with regard to sailing patterns and activity level, and thereby need for reception facilities for the other PAME countries.

4.4 The GAP evaluation

As may be seen from Chapter 4.1 the ports that have answered the electronic questionnaire in general assess their provision of waste reception facilities for the different types of waste to be either “satisfactory” or “fully meets the requirements”. With the limited available information it is difficult to state if this is truly correct. It is likely that some of the ports will deviate from the requirements outlined in MARPOL 73/78. Many of the ports also report that certain waste types are not relevant in the given port. For ozone depleting substances and exhaust gas residues the reported relevance is 0 %, which is very unlikely for all ports. A reported relevance of 0 % on garbage is also very unlikely for all ports in a country.

The answers from the authorities (limited information received from a few countries) indicate that most of the PAME countries still have some challenges with regard to waste reception facilities. Some countries emphasises their lack of facilities for noxious liquid substances and ozone depleting substances and exhaust gas residues. However, it should be noted that for some ports these types of waste may not be relevant.

The type of sailing traffic and sailing activity in the different parts of the PAME region varies a lot. For e.g. Norway it is evident that there is a lot of fishing activity in the PAME area. MARPOL 73/78 requires that also fishing vessels shall deliver their waste ashore. It is however uncertain if the requirements in MARPOL 73/78 are adequate enough to provide for enough reception facilities for smaller fishing vessels. However this is a general uncertainty on the principles of MARPOL that are not specific for the PAME region.

With different type of sailing traffic and sailing activity in different ports in the PAME region, ice conditions and permafrost conditions in mind it is evident that the need for ship waste reception facilities will vary a lot.



It should be noted that very limited information is available in particular from Russia, and that the answers from USA are not directly comparable with the other countries either.

Based on the limited available information it is difficult to establish a GAP more precisely than what is done above. However, it is documented that there is a GAP and that there is a need for harmonised guidelines on waste reception facilities for the PAME region.

5 PROPOSAL FOR IMPROVEMENTS

As stated above the project has been faced with challenges in receiving enough detailed information in due time to draw substantial conclusions with regard to harmonised guidelines for ship waste reception facilities in the PAME region. Therefore in the following some already existing “systems” are addressed which could be a base for guidelines for the PAME region. It is recommended that these are further discussed in the PAME Working Group and that the direction of common guidelines for the PAME region thereafter is outlined by the group before actual guidelines are developed.

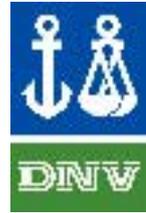
On a global scale the *MARPOL 73/78* (Ref. /1/) is designed to eliminate international pollution from vessels with operational waste discharge requirements set out in different annexes (I-VI). Compliance with these requirements will reduce the amount of pollution in the marine environment. As part of the implementation of this convention, IMO has developed a *Comprehensive Manual on Port Reception Facilities* (Ref. /13/). This manual provides guidance on the provision of reception facilities for ship-generated waste. As a complement to this manual the Marine Environment Protection Committee (MEPC) of IMO has developed *Guidelines for ensuring the adequacy of Port Waste Reception Facilities* (Ref. /14/). These guidelines provide information relating to the ongoing management of existing facilities, as well as for the planning and establishment of new facilities. The guidelines are intended to:

- assist States in planning and providing adequate port waste reception facilities
- encourage States to develop environmentally appropriate methods of disposing of ships' wastes ashore.

It is recommended that the PAME countries implement these guidelines in the PAME region.

Several countries and regions have developed specific guidelines on reception facilities and waste management. One example is the Helsinki Commission who has elaborated and approved the *Strategy for Port Reception Facilities for Ship-generated Wastes and Associated Issues*, also known as the *Baltic Strategy*. This comprises a set of measures and regulations with the main goals to ensure ships' compliance with global and regional discharge regulations and to eliminate illegal discharges into the sea of all wastes from all ships. Within this cooperation The Baltic Ports Information System has been prepared which provides information on approximately 100 Baltic ports in Denmark, Poland, Lithuania, Latvia, Estonia and Russia. In this information system data can be retrieved either for a specific port or a specific type of waste. For a specific port information can be found on e.g. the waste management capabilities, handling fees, opening hours, notification terms, address and home page of the port (Ref. /15/). Similar systems should be considered for the PAME region.

The European Union have developed its own *EU directive 2000/59/EC of 27 November on port reception facilities for ship-generated waste and cargo residues* (see Chapter 2.2). Five of eight PAME countries are a part of the EU-regime and Denmark, Sweden and Finland as a part of EU



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and Norway and Iceland are a part of the European Economic Area Agreement (EEA) and based on this agreement they have to act as a part of the EU-regime. This EU-directive is now under revision. As already mentioned an important regime outlined in this EU-directive is the so-called “no special fee” system which means that the vessel will be charged a fixed waste handling port fee irrespective of delivery of waste. Exempt from this fee is the delivery of bilge, sludge and slop as well as hazardous materials. For these waste types a waste handling fee will be defined based upon amount of waste delivered. It should also be noted that the same system has been implemented within the ports located around the Baltic Sea (Ref. /15/). This principle can also be considered for the ports in the PAME region.

United States Coast Guard (Ref. /16/) has issued “*A guide to waste management practices for shipping agents, waste haulers, shipping companies and port and terminal operators*” in which Certificates of Adequacy (COA’s) are described. COA documents are issued by the Coast Guard and certify that a port or terminal meets the requirements of a reception facility required under MARPOL 73/78. It is further referred to Chapter 3.2.7 where these certificates are mentioned. Similar systems should be considered for the PAME region.

It is obvious that the PAME area is substantially different to other regions with regard to conditions such as urbanization, sailing type, sailing activity, sailing distances, ice conditions, permafrost conditions, vegetation, soil etc. In addition to the “natural” conditions the legal conditions and the current approach to the challenges also vary throughout the area. With these variations in mind it is also obvious that the need for and types of ship waste reception facilities will vary.

Based on this it is, again, recommended that the direction of common guidelines for the PAME region should be outlined before actual guidelines are developed. It is proposed that this direction should be pointed out by the PAME Working Group based, on among other, the above discussed and followed by the development of the harmonised guidelines.



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<http://www.fni.no/insrop/defaultINSROP.html>
- /18/ Internet page of the London Convention 1972:
<http://www.londonconvention.org/>
- /19/ Data from National Snow and Ice Data Center. Internet page:
<http://nsidc.org/>

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APPENDIX

A

SUMMARY OF REGULATIONS IN THE DIFFERENT ANNEXES OF MARPOL 73/78

This appendix presents a summary of the regulations in the different annexes of MARPOL 73/78.

A1 - Oil pollution (Annex I of MARPOL 73/78)

The most important regulations for preventing pollution by oil from ships are contained in Annex I of MARPOL 73/78. Annex I entered into force 2nd of October 1983.

Discharge into the sea of oil or oily mixture from ships is prohibited except when all the following conditions are satisfied, cf. regulation 9 in MARPOL 73/78 Annex I:

- a) For an oil tanker, except as provides for in subparagraph b) below, when:
 - i) the tanker is not within a special area;
 - ii) the tanker is more than 50 nautical miles from the nearest land;
 - iii) the tanker is proceeding en route;
 - iv) the instantaneous rate of discharge of oil content does not exceed 30 litres per nm;
 - v) the total quantity of oil discharge into the sea does not exceed for existing tankers 1/15,000 of the total quantity of the particular cargo of which the residue formed a part, and for new tankers 1/30,000 of the total quantity of the particular cargo of which the residue formed a part; and
 - vi) the tanker has in operation an oil discharge monitoring and control system and a slop tank arrangement as required in MARPOL 73/78 Annex I.
- b) From a ship of 400 tons gross tonnage and above other than an oil tanker and from machinery space bilges excluding cargo pump-room bilges of an oil tanker unless mixed with oil cargo residues, when:
 - i) the ship is not within a special area;
 - ii) the ship is proceeding en route;
 - iii) the oil content of the effluent without dilution does not exceed 15 parts per million (ppm); and
 - iv) the ship has in operation equipment as required by the annex.
- c) Ship less than 400 tons gross tonnage other than an oil tanker whilst outside the special area, the Administration shall ensure that the equipped as far as practicable and reasonable with installations to ensure the storage of oil residues on board and their discharge to reception facilities or into the sea in compliance with the requirements in subparagraph a) above.

The prohibition of discharge of oil and oily mixture shall not apply if, cf. regulation 11 in MARPOL 73/78 Annex I:

- a) the discharge into the sea of oil or oily mixture is necessary for the purpose of securing the safety of a ship or saving life at sea; or
- b) the discharge into the sea of oil or oily mixture is resulting from damage to a ship or its equipment (provided that all reasonable precautions have been taken after the occurrence of the damage or the discovery of the discharge for the purpose of preventing or minimizing the discharge and the owner or the master acted either with intent to cause damage or recklessly and with knowledge that damage would probably result); or

- c) the discharge into the sea of substances containing oil, approved by the Administration, when being used for the purpose of combating specific pollution incidents in order to minimize the damage from pollution

Every ship of 400 tons gross tonnage and above shall be provided with a tank or tanks of adequate capacity, having regard to the type of machinery and length of voyage, to receive the oil residues (sludge) which cannot be dealt with otherwise in accordance with the requirements, such as those resulting from the purification of fuel and lubricating oils and oil leakages the machinery spaces. New ships shall be designed and constructed so as to facilitate their cleaning and the discharge of residues to reception facilities, cf. regulation 17 in Annex I, MARPOL 73/78.

The requirements are stricter in a number of "special areas". The arctic area is not defined as "special areas" in Annex I, and will because of that reason not be discussed in this project.

The Government of each Party undertakes to ensure the provision at oil terminals, repair ports, and in other ports which ships have oily residues to discharge, of facilities for the reception of such residues and oily mixtures as remain from oil tankers and other ships adequate to meet the needs of the ships using them without causing undue delay ship, cf. regulation 12 in Annex I, MARPOL 73/78.

Reception facilities shall be provided in:

- a) all ports and terminals in which oil is loaded into oil tankers where such tankers have immediately prior to arrival completed a ballast voyage of not more than 72 hours or not more than 1.200 nm;
- b) all ports and terminals in which oil other than crude oil in bulk is loaded at an average quantity of more than 1.000 metric tons per day;
- c) all ports having ship repair yards or tank cleaning facilities;
- d) all ports and terminals which handle ships provided with the sludge tank(s) required by regulation 17 of this annex;
- e) all ports in respects of oily bilge waters and other residues, which cannot be discharged in accordance with regulation 9 of this annex; and
- f) all loading ports for bulk cargoes in respect of oil residues from combination carriers which cannot be discharged in accordance with regulation 9 of this annex.

A2 - Noxious liquid substances (NLS), (chemicals) in bulk-tank cleaning after discharge of cargo (Annex II of MARPOL 73/78)

MARPOL 73/78 Annex II regulates in details the discharge criteria and measures for the control of pollution by noxious liquid substances (NLS) carried in bulk. Annex II entered into force 6th of April 1987.

Some 250 substances were evaluated and included in the list appended to the Convention. The discharge of their residues is allowed only to reception facilities until certain concentrations and conditions (which vary with the category of substances) are complied with. In any case, no discharge of residues containing noxious substances is permitted within 12 miles of the nearest land. More stringent restrictions applied to the Baltic and Black Sea areas.

The prohibition of discharge of noxious liquid substances shall not apply if, cf. regulation 6 in MARPOL 73/78 Annex II:

- d) the discharge into the sea of noxious liquid substance or mixtures containing such substances is necessary for the purpose of securing the safety of a ship or saving life at sea; or
- e) the discharge into the sea of noxious liquid substance or mixtures containing such substances is resulting from damage to a ship or its equipment (provided that all reasonable precautions have been taken after the occurrence of the damage or the discovery of the discharge for the purpose of preventing or minimizing the discharge and the owner or the master acted either with intent to cause damage or recklessly and with knowledge that damage would probably result); or
- f) the discharge into the sea of noxious liquid substance or mixtures containing such substances, approved by the Administration, when being used for the purpose of combating specific pollution incidents in order to minimize the damage from pollution.

The Government of each Party to the Convention undertakes to ensure the provision of reception facilities according to the needs ships using ports, terminals or repair ports as follows, cf. regulation 7 in Annex II, MARPOL 73/78:

- a) cargo loading and unloading ports and terminals shall have facilities adequate for reception without undue delay to ships of such residues and mixtures containing noxious liquid substances as would remain for disposal from ships carrying them as a consequence of application of this Annex; and
- b) ship repair ports undertaking repairs to chemical tankers shall have facilities adequate for the reception of residues and mixtures containing noxious liquid substances.

A revised Annex II has been adopted and includes a new four-category categorization system for noxious and liquid substances. The revised annex is expected to enter into force on 1st of January 2007.

A3 - Sewage (Annex IV of MARPOL 73/78)

The most important regulations for preventing pollution by sewage from ships are contained in Annex IV of MARPOL 73/78. Annex IV entered into force 27th of September 2003. A revised Annex IV has later been adopted and entered into force 1st of August 2005. The revised Annex will be discussed here.

Annex IV apply to the following ships engaged in international voyages, cf. regulation 2 in MARPOL 73/78 Annex IV:

- a) new ships of 400 gross tonnage and above and new ships which are certified to carry more than 15 persons.
- b) existing ships of 400 gross tonnage and above and new ships which are certified to carry more than 15 persons, five years after the date of entry into force of Annex IV.

Discharge of sewage into the sea is prohibited, except when, cf. regulation 9 and 11 in MARPOL 73/78 Annex IV:

- a) the ship is discharging comminuted and disinfected sewage using a system approved by the Administration at a distance of more than 3 nm from the nearest land. Such system shall be fitted with facilities to the satisfaction of the Administration, for the temporary storage of sewage when the ship is less than 3 nm from the nearest land. Sewage which is not comminuted or disinfected can be discharged into the sea at a distance of more than 12 nm from the nearest land. Sewage that has been stored in holding tanks shall, in any case, not be discharged instantaneously but at a moderate rate when the ship is en route and proceeding at not less than 4 knots; the rate of discharge shall be approved by the Administration based upon developed by the Organization, or
- b) the ship has in operating an approved sewage treatment plant which has been certified by the Administration, in compliance with the standards and test methods developed by the Organization.

If the ship does not have one of these two sewage systems, they need to have a holding tank of the capacity to the satisfaction of the Administration for the retention of all sewage, having regard to the operation of the ship, the number of persons on board and other relevant factors. The holding tank shall be constructed to the satisfaction of the Administration and shall have a means to indicate visually the amount of its contents, cf. regulation 9 in MARPOL 73/78 Annex IV.

The prohibition of discharge of sewage shall not apply if, cf. regulation 3 in MARPOL 73/78 Annex IV:

- a) the discharge of sewage from a ship is necessary for the purpose of securing the safety of a ship or saving life at sea; or
- b) the discharge of sewage resulting from damage to a ship or its equipment if all reasonable precautions have been taken before and after the occurrence of the damage for the purpose of preventing or minimizing the discharge.

The Government of each Party to the Convention, which requires ships operating in waters under its jurisdiction and visiting ships while in its waters to comply with requirements of regulation 11, undertakes to ensure the provision of facilities at ports and terminals of the reception of sewage, without causing delay to ships, adequate to meet the needs of the ship using them, cf. regulation 12 in MARPOL 73/78 Annex IV.

A4 - Garbage (Annex V of MARPOL 73/78)

The most important regulations for preventing pollution by garbage from ships are contained in Annex V of MARPOL 73/78. Annex V entered into force 31st of December 1988. The Annex deals with different types of garbage and specifies the distances from land and the manner in which they may be disposed of.

The disposal into the sea of all plastics, including but not limited to synthetic ropes, synthetic fishing nets, plastic garbage bags and incineration ashes from plastic products which may contain toxic or heavy metal residues is prohibited, cf. regulation 3 in MARPOL Annex V.

The disposal into the sea of dunnage, lining and packing materials which will float shall be made as far as practicable from the nearest land but in any case is prohibited if the distance from the nearest land is less than 25 nm, cf. regulation 3 in MARPOL Annex V.

The disposal into the sea of food wastes and all other garbage including paper products, rags, glass, metal, bottles, crockery and similar refuse shall also be made as far as practicable from the nearest land but in any case is prohibited if the distance from the nearest land is less than 12 nm. Disposal into the sea of this type of garbage may be permitted when it has passed through a comminuter or grinder and made as far as practicable from the nearest land but in any case is prohibited if the distance from the nearest land is less than 3 nm. Such comminuter or ground garbage shall be capable of passing through a screen with openings no greater than 25 mm, cf. regulation 3 in MARPOL Annex V.

The requirements are stricter in a number of "special areas". The arctic area is not defined as "special areas" in Annex V, and will because of that reason not be discussed in this project.

The prohibition of disposal into the sea of garbage shall not apply if, cf. regulation 6 in MARPOL 73/78 Annex V:

- a) the disposal of garbage from a ship is necessary for the purpose of securing the safety of a ship or saving life at sea; or
- b) the escape of garbage resulting from damage to a ship or its equipment provided all reasonable precautions have been taken before and after the occurrence of the damage, for the purpose of preventing or minimizing the escape; or
- c) the accidental loss of synthetic fishing nets, provided that all reasonable precautions have been taken to prevent such loss.

The Government of each Party to the Convention undertakes to ensure the provision of facilities at ports and terminals for the reception of garbage, without causing undue delay to ships, and according to the needs of the ship using them, cf. regulation 7 in MARPOL 73/78 Annex V. The Government shall also notify the Organization for transmission to the Parties concerned of all cases where the facilities provided under this regulation are alleged to be inadequate.

A5 - Ozone depleting substances and residues of exhaust gas cleaning (Annex VI of MARPOL 73/78)

The most important regulations for preventing air pollution from ships are contained in Annex VI of MARPOL 73/78. Annex VI entered into force 19th of May 2005. The regulations in this annex set limits on sulphur oxide and nitrogen oxide emissions from ship exhausts and prohibit deliberate emissions of ozone depleting substances.

The Government of each Party undertakes to ensure the provision of facilities adequate to meet the needs of ships using its repair ports or braking facilities for the reception of ozone depleting substances and equipment containing such substances when removed from ship and the needs of ship using its ports, terminals or repair ports for the reception of exhaust gas cleaning residues from an approved exhaust gas cleaning system when discharge into the marine environment of these residues is not permitted, without causing undue delay to ships. The Government shall also notify the Organization for transmission to the Parties concerned of all cases where the facilities

provided under this regulation are alleged to be inadequate, cf. regulation 17 in MARPOL 73/78 Annex VI.

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APPENDIX

B

PORTS THAT HAVE ANSWERED THE ELECTRONIC QUESTIONNAIRE

PORTS THAT HAVE ANSWERED THE ELECTRONIC QUESTIONNAIRE

Name of port	City	Country	Name of contact person	E-mail
Gjoa Haven	Hamlet of Gjoa Haven	Canada	Greg Morash	roderir@tc.gc.ca
Pond Inlet	Hamlet of Pond Inlet	Canada	Paniloo Sangoya	roderir@tc.gc.ca
Rankin Inlet	Rankin Inlet	Canada	Waste and Sewage Manager	roderir@tc.gc.ca
Paulatuk	Hamlet of Paulatuk	Canada	Hamlet Official	roderir@tc.gc.ca
Nanasivik	Nanasivik	Canada	Government Liaison Officer	roderir@tc.gc.ca
Tuktoyaktuk	Tuktoyaktuk	Canada	Willie Moore	roderir@tc.gc.ca
Kuujuuaq	Kuujuuaq	Canada	Ian Robertson	roderir@tc.gc.ca
Churchill	Churchill, Manitoba	Canada	Doug Robinson	roderir@tc.gc.ca
Port of Fuglafjörð	FO-530 Fuglafjörð	Faroe Islands	Kristian Oluf Christiansen	pof@online.fo
Klaksvíkar Havn	FO-700 Klaksvík	Faroe Islands	J.Z.Dahl	klport@post.olivant.fo
Vestmanna havn	Vestmanna	Faroe Islands	Leivur Olsen	-
Runavíkar havn	Runavík	Faroe Islands	Jákup Lamhaug	havnarskrivstovan@runavik.fo
Tvøroyrar Havn (Port of Tvoroyri)	Tvøroyri	Faroe Islands	Chris Jan Michelsen	tvhavn@post.olivant.fo
Tórshavnar havn	Tórshavn	Faroe Islands	Jónsvein Lamhaug	jonsvein@torshavn.fo
Sørvágs Havn (Port of Soervag)	Sørvágur (Soervag)	Faroe Islands	Heðin Jørgensen, harbourmaster	s-havn@soervag.fo
Nuuk Havn	Nuuk	Greenland	John Rasmussen	ras@ral.gl
Sisimiut Havn	Sisimiut	Greenland	Hans Fencer	hfe@ral.gl
Aasiaat Havn	Aasiaat	Greenland	Hans Rafaelsen	hra@ral.gl
Ilulissat Havn	Ilulissat	Greenland	Karl Geisler	kg@ral.gl
Qaqortoq Havn	Qaqortoq	Greenland	Efraim Tittussen	eti@ral.gl
Port of Hafnarfjörður	Hafnarfjörður	Iceland	Mar Sveinbjornsson	mar@hafnarfjordur.is
Talknafjörður	Talknafjörður	Iceland	Már Erlingsson	mar@talknafjordur.is
Port of Akureyri	Akureyri	Iceland	Petur Olafsson	petur@port.is
Associated Icelandic Ports	Reykjavík, Grundartangi, Akranes, Borgarnes	Iceland	Hallur Arnason	hallur@faxaports.is
Hornafjörður harbour	Hofn	Iceland	Sigfús Harðarson	hofnin@hornafjordur.is
Vestmannaeyjahöfn	Vestmannaeyjar	Iceland	Ólafur M. Kristinsson	omk@vestmannaeyjar.is
Raufarhöfnarharbour	Raufarhöfn	Iceland	Guðný Hrunn Karlsdóttir	gudny@raufarhofn.is
Bátsfjörð Havn K/F	Bátsfjörð	Norway	Ørjan Nergaard	havnesjef@batsfjord.havn.no
Hammerfest	Hammerfest	Norway	Geir Amundsen	ga@hammerfest.havn.no
Tromsø Havn KF	Tromsø	Norway	Asbjørn Mortensen	asbjorn.mortensen@tromso.havn.no
Port of Narvik	Narvik	Norway	Ivan Jørgensen	ij@narvikhavn.no

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APPENDIX

C

**LIST OF OILY WASTE RECEPTION FACILITIES OF THE RUSSIAN
FEDERATION**

LIST OF OILY WASTE RECEPTION FACILITIES OF THE RUSSIAN FEDERATION

Country	Port, Name of Port Authority or Any Other Person or Agency Address	Dimey ballast water	Tank washing (slips)	Can facilities in the port accept			City biogas water	Sludge from fuel oil purifier	Restriction on the use of facilities	Remarks
				Oil mixtures containing solvents/admixtures	Sludge from fuel oil purifier	City biogas water				
Russian Federation	<p>Port: name of port Authority or Any Other Person or Agency Address Petyo: name of port Authority or Any Other Person or Agency Address Petyo: name of port Authority or Any Other Person or Agency Address</p>	N	N	N	Y	Y	N		424	
	<p>Moscow P.O. Box 18, Petyo: name of port Authority or Any Other Person or Agency Address Petyo: name of port Authority or Any Other Person or Agency Address</p>	Y	Y	N	Y	Y	Y	Area 6000 m ² per month		
	<p>Moscow P.O. Box 18, Petyo: name of port Authority or Any Other Person or Agency Address Petyo: name of port Authority or Any Other Person or Agency Address</p>	Y	Y	N	Y	Y	Y		424	
	<p>Moscow P.O. Box 18, Petyo: name of port Authority or Any Other Person or Agency Address Petyo: name of port Authority or Any Other Person or Agency Address</p>	Y	Y	N	Y	Y	Y	Area 10000 m ² per month	724 volumes of waste from 2000-2001 9428 volumes of waste from 2002-2003 2172 volumes of waste from 2004-2005 from 2006	
	<p>Moscow P.O. Box 18, Petyo: name of port Authority or Any Other Person or Agency Address Petyo: name of port Authority or Any Other Person or Agency Address</p>	Y	Y	N	Y	Y	Y*	Area 10000 m ² per month	424 7168 from 19 1000	

Edichallin Avdeling av Sea Part, 115 Parkveien 81, Kjelleren Tel: +47 42 74 22 24 Fax: +47 42 74 22 24 E-post: edichallin@detnorskeveritas.no Postboksnummer: 4116 Stat. lernr.: 22111440001 Tel.: +47 42 74 22 24 Fax: +47 42 74 22 24 E-post: edichallin@detnorskeveritas.no	Y	Y	Y ¹	Y	Y	Y	Accept. 520 l per rece day
Edichallin Avdeling av Sea Part, 115 Parkveien 81, Kjelleren Tel: +47 42 74 22 24 Fax: +47 42 74 22 24 E-post: edichallin@detnorskeveritas.no Postboksnummer: 4116 Stat. lernr.: 22111440001 Tel.: +47 42 74 22 24 Fax: +47 42 74 22 24 E-post: edichallin@detnorskeveritas.no	Y	Y	N	N	Y	Y	Accept. 430 m ³ per rece reception
Edichallin Avdeling av Sea Part, 115 Parkveien 81, Kjelleren Tel: +47 42 74 22 24 Fax: +47 42 74 22 24 E-post: edichallin@detnorskeveritas.no Postboksnummer: 4116 Stat. lernr.: 22111440001 Tel.: +47 42 74 22 24 Fax: +47 42 74 22 24 E-post: edichallin@detnorskeveritas.no	N	N	N	N	Y	Y	Accept. 520 m ³ per rece reception
Edichallin Avdeling av Sea Part, 115 Parkveien 81, Kjelleren Tel: +47 42 74 22 24 Fax: +47 42 74 22 24 E-post: edichallin@detnorskeveritas.no Postboksnummer: 4116 Stat. lernr.: 22111440001 Tel.: +47 42 74 22 24 Fax: +47 42 74 22 24 E-post: edichallin@detnorskeveritas.no	Y	Y	Y	Y	Y	Y	
Edichallin Avdeling av Sea Part, 115 Parkveien 81, Kjelleren Tel: +47 42 74 22 24 Fax: +47 42 74 22 24 E-post: edichallin@detnorskeveritas.no Postboksnummer: 4116 Stat. lernr.: 22111440001 Tel.: +47 42 74 22 24 Fax: +47 42 74 22 24 E-post: edichallin@detnorskeveritas.no	Y	Y	N	Y	Y	Y	7112
Edichallin Avdeling av Sea Part, 115 Parkveien 81, Kjelleren Tel: +47 42 74 22 24 Fax: +47 42 74 22 24 E-post: edichallin@detnorskeveritas.no Postboksnummer: 4116 Stat. lernr.: 22111440001 Tel.: +47 42 74 22 24 Fax: +47 42 74 22 24 E-post: edichallin@detnorskeveritas.no	N	N	N	N	Y	Y	Accept. 600 m ³ per year
Edichallin Avdeling av Sea Part, 115 Parkveien 81, Kjelleren Tel: +47 42 74 22 24 Fax: +47 42 74 22 24 E-post: edichallin@detnorskeveritas.no Postboksnummer: 4116 Stat. lernr.: 22111440001 Tel.: +47 42 74 22 24 Fax: +47 42 74 22 24 E-post: edichallin@detnorskeveritas.no	N	N	N	N	Y	Y	Accept. 434 m ³ per rece reception

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APPENDIX

D

**COUNTRY LETTER AND ELECTRONIC QUESTIONNAIRE TO THE
PORTS**

DET NORSKE VERITAS



DET NORSKE VERITAS
ASKULEDE VILLI LAGENS

Veritas AS
1105 OSLO

Tlf: +47 22 39 40 00
Fax: +47 22 39 40 11
http://www.dnv.com

To:
Correspondence group on reception facilities in the PAMF region

Your ref.: Our ref: MUNN09129kop0120023 Date: 25.10.2005

Port reception facilities in the PAMF region

Reference is made to previous communication regarding the project "Port reception facilities in the PAMF region", which Det Norske Veritas (DNV), on behalf of the Norwegian Maritime Directorate, will carry out.

Background

The objective of this project is to assess existing measures for port reception facilities for ship-generated waste and cargo residues, and to develop harmonized guidelines for member states for their consideration.

The first part of the project is to identify the existing port reception facilities for ship-generated waste and cargo residues in the PAMF region and which regulations and incentives for delivery each country has implemented. A gap analysis will then be set up to identify gaps in existing reception provisions compared to the desired deliverance performance. Desired performance means when the port reception facilities are available and the incentives are so good that the ship delivers the waste to the port. The outcome of the project will be a recommendation for a harmonized guideline on waste reception facilities.

In order to carry out the above described tasks in a proper way we need your assistance in collecting data from representative ports in your country.

Questionnaire to the Ports in the PAMF region

To identify the information that is needed we have prepared an electronic questionnaire that needs to be filled in by representative ports in the PAMF region. The questionnaire is divided into 7 sections:

1. Contact Details
2. Type of Vessel
3. Oily Waste
4. Noxious Liquid Substances
5. Sewage
6. Garbage

DNV/Veritas/05

Det Norske Veritas



7. Ozone Depleting Substances/Exhaust Gas Residues

It might be that the ports will have challenges with answering all the questions. In that case, we still want them to answer these questions that are possible to answer.

The questionnaire is available on the following website:

<http://response.questback.com/DNV/SZ3vn4YaZ2/>

Can you please send the link of the electronic questionnaire to 5 to 10 representative ports in the research area (PAME region), and ask them to answer the questionnaire within **11th of November 2005**. Please also send us a copy of the mail you are sending. We do hope all the selected ports have the possibility to answer the questionnaire electronic. If that is not the case, we do hope that you are able to assist them in filling in the questionnaire. The outcome of the project depends to a high degree on the results from this questionnaire.

Questions to the authorities in the PAME region

We have also prepared some questions to the authorities in each of the countries who are part of PAME. We therefore also request you to answer the following questions:

- What regulations and intensives have the country implemented (ex. IMO, regional and local regulations/intensives) on:
 - a) Oily waste. Please specify.
 - b) Noxious liquid substances. Please specify.
 - c) Sewage. Please specify.
 - d) Garbage. Please specify.
 - e) Ozone depleting substances and exhaust gas residues. Please specify.

Can you please also answer these questions within **11th of November 2005**.

Thanks in advance for helping us, and we look forward to hearing from you.

If you have any questions to the above, please contact one of the following persons:

- Terje Sverud, phone + 47 67 57 87 80, e-mail Terje.Sverud@dnv.com
- Kari Skogen, phone + 47 67 57 96 41, e-mail Kari.Skogen@dnv.com

Yours sincerely,

for DET NORSKE VERITAS AS

Terje Sverud
Project Manager

Multi-select

Oil stains The following information is collected for the products by default. Are there any Endpoints to expose by (url)?

Oil stain warnings The following information is collected for the products by default. Are there any Endpoints to expose by (url)?

Dirty bathtub washer The following information is collected for the products by default. Are there any Endpoints to expose by (url)?

Oil stain washer The following information is collected for the products by default. Are there any Endpoints to expose by (url)?

Oil sudsing The following information is collected for the products by default. Are there any Endpoints to expose by (url)?

Used lubricating oil The following information is collected for the products by default. Are there any Endpoints to expose by (url)?

Used lubrication The following information is collected for the products by default. Are there any Endpoints to expose by (url)?

Used lubricating oil The following information is collected for the products by default. Are there any Endpoints to expose by (url)?

SECTION 2: ONLY WASHING

2.1. Type of oily wastes

Which warning procedures are enabled by?

Oil stains The following information is collected for the products by default. Are there any Endpoints to expose by (url)?

Oil stain warnings The following information is collected for the products by default. Are there any Endpoints to expose by (url)?

Dirty bathtub washer The following information is collected for the products by default. Are there any Endpoints to expose by (url)?

Oil sudsing The following information is collected for the products by default. Are there any Endpoints to expose by (url)?

Used lubricating oil The following information is collected for the products by default. Are there any Endpoints to expose by (url)?

SECTION 2: ONLY WASHING

2.1. Type of oily wastes

Which warning procedures are enabled by?

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This document is a confidential document of the Norwegian Industrial Union of Metalworkers (NHO-Metall).

To provide the requirements

SECTION 5.1: SIGNAGE (Original 2007/08 edition 10)

Do you have signage in the store?

Yes No

If yes, please provide details:

SECTION 5.2: TYPE OF SIGNAGE

In-store signage (e.g., signs, posters, etc.)

Out-of-store signage (e.g., signs, posters, etc.)

Other (please specify):

Can signage be removed?

Yes No

Mark water: Yes No

Grey water: Yes No

What type of reception facilities are available? (Multiple answers possible)

Full Reception Area

Staff member

Self-serve

No staff

Are there any limitations in capacity? (Specify)

Yes (please specify limitations in capacity)

No

Mark water:

Yes No

Grey water:

Yes No

SECTION 5.3: TYPE OF SIGNAGE

In-store signage (e.g., signs, posters, etc.)

Out-of-store signage (e.g., signs, posters, etc.)

Other (please specify):

SECTION 5.4: TYPE OF SIGNAGE

In-store signage (e.g., signs, posters, etc.)

Out-of-store signage (e.g., signs, posters, etc.)

Other (please specify):

Which service providers are available? (Multiple answers possible)

Service Provider	Available	Partial	Not Available
Water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Grey water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mark water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

What quantity are reported for water (per 2000)? (liters/2000)

Mark water:

Yes No

Grey water:

Yes No

SECTION 5.1: TYPE OF SIGNAGE

In-store signage (e.g., signs, posters, etc.)

Out-of-store signage (e.g., signs, posters, etc.)

Other (please specify):

SECTION 5.2: TYPE OF SIGNAGE

In-store signage (e.g., signs, posters, etc.)

Out-of-store signage (e.g., signs, posters, etc.)

Other (please specify):

SECTION 5.3: TYPE OF SIGNAGE

In-store signage (e.g., signs, posters, etc.)

Out-of-store signage (e.g., signs, posters, etc.)

Other (please specify):

SECTION 5.4: TYPE OF SIGNAGE

In-store signage (e.g., signs, posters, etc.)

Out-of-store signage (e.g., signs, posters, etc.)

Other (please specify):

5.4 Container Section 5 - Biogenic

Yes No

The following products are biogenic:
 - Paper products
 - Glass
 - Metal
 - Plastic

Has food on the above? (If not, skip over or provide an assessment of the proportion of waste transported there)

No
 Yes

Can you see any energy?
 No
 Yes

Can you see any emissions?
 No
 Yes

SECTION 6: GARBAGE

No
 Yes

The above questions are to be answered by the manufacturer or the supplier. If not, skip over or provide an assessment of the proportion of waste transported there.

SECTION 6: GARBAGE
 6.1 Type of garbage

Can garbage be recycled?

No
 Yes

7. Metals

No
 Yes

8. Paper products

No
 Yes

9. Glass products

No
 Yes

10. Plastic products

No
 Yes

11. Textiles

No
 Yes

The above questions are to be answered by the manufacturer or the supplier. If not, skip over or provide an assessment of the proportion of waste transported there.

What type of incineration facilities are available? (Multiple answers possible)

Fields: Yes No Yes No Yes No

Fastening elements (nails, fasteners, rivets, bolts, screws, etc.)

No Yes

6.2. Other products

No Yes

Fastener products, nags, glass, etc.

No Yes

Food waste

No Yes

Textiles

No Yes

Are there any limitations in capacity limit?
 No Yes

Plastics

No Yes

Food waste

No Yes

Textiles

No Yes

Fastening elements (nails, fasteners, rivets, bolts, screws, etc.)

No Yes

6.2. Other products

No Yes

Fastener products, nags, glass, etc.

No Yes

Food waste

No Yes

Textiles

No Yes

Are there any limitations in capacity limit?

No Yes

Plastics

No Yes

Food waste

No Yes

Textiles

No Yes

