INTERNATIONAL MARITIME ORGANIZATION

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DEVELOPMENT OF A MANDATORY CODE FOR SHIPS OPERATING IN POLAR WATERS

Information on shipping and conditions in the Antarctic area

Submitted by New Zealand

SUMMARY

Executive summary:	This document contains information regarding shipping patterns and environmental conditions in the Antarctic area relevant to the development of the proposed mandatory Polar Code
Strategic direction:	5.2
High-level action:	5.2.1
Planned output:	5.2.1.19
Action to be taken:	Paragraph 19
Related document:	DE 53/26 (section 18)

1 In 2009 a new high-priority work item to develop a mandatory Polar Code was approved at MSC 86 and tasked to the DE Sub-Committee. A correspondence group has subsequently been established by the DE Sub-Committee to further develop the draft international Code of safety for ships operating in polar waters.

2 This document contains background information on shipping traffic and characteristics of the Antarctic environment relevant to the ongoing development of the mandatory Polar Code. New Zealand is presenting this information as a resource for members working through the Sub-Committee and in the correspondence group to assist in ensuring information specific to the Antarctic region, which in some ways differs substantially from the Arctic, is given full consideration in the development of the Code.

Shipping traffic in the Antarctic

3 Shipping traffic in the Antarctic area consists principally of tourist vessels, deep sea fishing vessels and a small number of ships transporting supplies and personnel to Antarctic research bases.

4 Based on data supplied by IAATO (International Association of Antarctica Tour Operators) to ATCM (Antarctic Treaty Consultative Meeting) 32, during the 2009/2010 Antarctic tourism season, a total of 36,881 commercial passengers travelled to the area by sea on IAATO member ships. Trips were conducted by 44 different operators, with 51 ships making a total of 239 voyages during the season. This represents more than a doubling of passenger numbers and voyages in the past 10 years. The size of ships varies, with 26 ships carrying between 13 and 199 passengers, 4 ships carrying between 200 and 500 passengers and 9 ships carrying more than 500 passengers. These numbers do not include ships' personnel or guides. Based on an assessment of data between 2007 and 2009, cruise ships generally have approximately one crew/staff member for every two passengers although the ratio of crew to passengers is higher in some cases. Based on that data it is expected that the number of people entering the area by sea during the 2009/2010 season was in excess of 50,000.

5 In the 2009/2010 Antarctic season, over 21,000 cruise passengers landed on the continent as part of their voyage. Landings are generally made using small boats such as Zodiacs. Ships are visiting a large number of different sites, with 73 sites routinely visited but as of 2008/2009 there were 368 sites recorded as having been visited. Aside from cruise ships, approximately 180 passengers travelled to the area on 12 commercially operated small yachts.

6 Based on data provided by IAATO for the 2009/2010 season, the vast majority of operations (more than 95%), including tourist landings, are conducted in the Antarctic Peninsula region. Tourist voyages lasted between 4 and 25 days.

7 It is more difficult to find data on private expeditions as there is not a centralized means for coordinating these activities. However, data collected from Port Lockroy, which is visited by many yachts visiting the region, shows that there were 38 visits by private ships during the 2008/2009 season. Most of those ships are yachts, including some quite small ships less than 20 metres in length.

8 There are over 40 Antarctic programme ships regularly employed by national programmes for work in the Antarctic including resupply.

9 Based on the list provided on the CCAMLR (Commission for the Conservation of Antarctic Marine Living Resources) website, a total of 37 commercial fishing ships are registered to operate in the Antarctic. These ships' size range varies from 46 to 134 metres in length (average length is 69 metres) and each ship has a normal crew complement of between 22 and 136 (average crew is 50).

Hydrographic charting and sea ice in the Antarctic

10 It is recognized that there is a lack of hydrographic data on which to base charts for the Antarctic below 60 degrees south. Currently there are 65 published charts, with another 37 prioritized for production by the International Hydrographic Organization. However, only 14 of these charts are planned for publication prior to 2015. The collection of hydrographic data in the region is done on a voluntary basis, with limited numbers of ships operating in some parts of the Antarctic that have the capacity to undertake the required level of data collection. As a result there is no mechanism for ensuring that the required data is collected to allow the production of charts although this issue is an ongoing topic of discussion at the International Hydrographic Organization and at the ATCM.

11 Currently the International Hydrographic Organization reports that less than one per cent of sea area within the 200 m contour is adequately surveyed or does not require a modern re-survey. The most effort in surveying to date has focussed on Peninsula Maritime Shipping Routes and approaches to permanent scientific research bases.

12 The risk posed by inadequate bathymetric information is increasing as new areas become clear of sea ice. Ice extent is reported to have decreased on the west side of the Antarctic Peninsula and Bellingshausen Sea and to have increased in the Western Ross Sea since the 1970s. However, model predictions suggest a trend for sea ice extent to decrease around the continent in both summer and winter.

13 At present, the sea ice extent roughly doubles in winter, with Antarctic sea ice mainly consisting of first year ice. Average sea ice thicknesses are 0.5 to 1 metre. As ice breaks out in summer it is characterized by ridging, lead formation and floe breakup. During summer the mean ice thickness is greatest but the concentration and extent are at their lowest.

Search and rescue

14 Five countries have SAR responsibilities in the Antarctic. In the event of an incident requiring evacuation of a vessel in the Southern Ocean, land-based facilities on the continent or islands do not have capacity for large numbers of people and have limited medical facilities. Particularly in the Ross Sea region and east Antarctica, the distances from the nearest port from which ships can be deployed to effect a rescue are very great, with ships potentially having to travel up to 3,000 nautical miles to reach some areas. In addition, there is limited capability to transit people to a place of safety which can provide adequate physical and medical care. ATCM Measure 4 (2004) requires tour operators to have in place contingency plans for search and rescue and adequate insurance or other arrangements to cover the costs, but the Measure has not entered into force for all the Antarctic Treaty parties.

Oil spill risks and response issues

15 Recent amendments to MARPOL Annex I that prohibit the carriage of heavy grades of oil in the Antarctic area greatly reduce the potential of a large spill of persistent oil in the region. However, lighter grades of intermediate fuel oil and diesel still pose a significant risk of an oil spill in the event of a vessel grounding, collision or sinking.

16 While lighter fuels will evaporate or disperse very rapidly compared to heavy grades of oil, the cold air and seawater temperatures in the Antarctic will greatly slow this process. Particularly where sea ice acts to dampen wave action, modelling shows that approximately half the volume of a diesel spill could be expected to remain on the water surface 5 days after a spill has occurred. For heavier oils a far greater proportion would be expected to remain on the surface. Due to the spreading properties of light oils, except where trapped by ice, a slick will rapidly cover a very large sea surface area, putting seabirds and marine mammals throughout the slick area at risk of exposure.

17 Tourist ships often target their activities along zones of high biological productivity, which are also important foraging and breeding areas for wildlife. Because of the very limited amount of ice-free coastline in the Antarctic, it is common for very large numbers of a species, often representing a significant proportion of the global population, to be present at one site.

18 Marine oil spill response capability in the Antarctic area is severely limited by remoteness, weather and sea conditions and the ability to access shorelines. Even where access is possible, in Antarctic conditions there would be exceptional requirements for equipping, training and housing response personnel and ensuring that the necessary safety precautions and support were in place. Where oil is widely spread among broken ice or trapped in ice there is generally no practical way to remove it, and where oil is collected there needs to be storage capacity for the oil and contaminated materials and the ability to return it to land for disposal. Contingency plans for large scale marine spill response in the Antarctic do not exist, and in practice it will generally not be possible to respond effectively to a spill or to rescue and rehabilitate oiled wildlife.

Action requested of the Sub-Committee

19 The Sub-Committee is invited to:

.1 note the information provided above; and

.2 consider the information on shipping and environmental conditions in the Antarctic in its deliberations on and development of the proposed mandatory Polar Code.