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Update to Vessel Incidents in Antarctic Waters

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Information paper submitted by ASOC¹

Abstract

Last year, ASOC submitted IP 53, *Follow-up to Vessel Incidents in Antarctic waters*. This paper provides additional information and analysis of those incidents, including a map of vessel incidents and case studies of several recent incidents in the context of the evolving Polar Code. The case studies point to a number of inadequacies in the current draft Polar Code. ASOC recommends that Parties work toward addressing these inadequacies at the International Maritime Organization (IMO) as a matter of priority if the final Polar Code is to be useful in the Antarctic.

Introduction

Last year, ASOC submitted IP 53, *Follow-up to Vessel Incidents in Antarctic waters*. This year, we have updated the information in that paper. ASOC has developed a Google Earth interactive map of these recent vessel incidents (Figures 1 and 2).² The map shows the location of each incident and provides the basic details of the incident, and is available for download. ASOC hopes that this map, which will continue to be updated and made available on our website,³ can be used as a resource for the Antarctic Treaty System.

Additionally, in IP 53 (ATCM XXXV), ASOC highlighted the importance of reporting on Antarctic incidents. Reporting includes not only reports about the incident, but thorough investigations into the causes of the incident, monitoring of pollution, and implementation of any recommendations that arise from the investigation.

Reporting on these incidents achieves additional relevance in light of the process underway by the IMO to develop a mandatory Polar Code (PC) for ships operating in polar waters. By examining several key incidents that have occurred in the Antarctic in light of the current draft of the Polar Code, ASOC has identified several instances where it would not contain provisions to prevent similar accidents in the future. ASOC recommends that Parties consider including additional requirements in the Polar Code to minimize the risk of these incidents and protect both humans and the ecosystem.

Case study: M/S Explorer

The M/S Explorer sunk on 23 November 2007. The official report from the Liberian government concludes that the sinking of the *Explorer* was caused by “the decision made by the Master to enter the ice field”⁴, which resulted in the tearing of a hole in the vessel. This hole caused the *Explorer* to sink quickly. The official report contains a number of findings and recommendations relevant to the ATCM and to the International Maritime Organization (IMO).

The most relevant findings and recommendations from the Liberian report were that the Master on the *Explorer* mostly had experience with Baltic ice, which led to his misjudgement of the type of ice he

¹ Lead authors: Claire Christian and Dr. Sian Prior with comments from James Barnes and Ricardo Roura.

² The map can be viewed using Google Earth, which is a free program downloadable from the Internet (<http://www.google.com/earth/index.html>). The map files are available on the meeting documents site for the XXXVI ATCM or from the ASOC Secretariat (secretariat@asoc.org). Parties are welcome to use and distribute the map as long as Kisei Tanaka/ASOC is credited as author.

³ www.asoc.org.

⁴ Republic of Liberia. 2009. Decision of the Commissioner of Maritime Affairs, R.L., and Report of Investigation in the Matter of Sinking of Passenger Vessel EXPLORER (O.N. 8495) 23 November 2007 in the Bransfield Strait near the South Shetland Islands. Monrovia: Bureau of Maritime Affairs.

encountered in the Southern Ocean; that the minimum shell plating thickness requirements for polar class vessels should be reassessed to determine if it is sufficient; and that classification societies should ensure that gauging records (of the vessel's shell plating) should be "maintained and available throughout the life of any vessel".⁵

In the current draft of the Polar Code, the requirements for ice navigators would not prevent the mistakes made by Master on the *Explorer* because there are no requirements that training must take place in the region where the navigator will operate.^{6,7} Without such specifications, it will be possible for navigators without Antarctic experience to work in the Antarctic. It does not appear that ice classification societies acted on the recommendations to reassess shell plating thickness requirements or to maintain more thorough vessel gauging records. The Polar Code relies on the ice classification societies to set the technical specifications that will enable vessels to fulfil Code requirements, and thus it is important that the societies address these findings before ice-strengthening rules for the Code are finalized. It is also important in the context of the Polar Code to ensure that the final categorisation of vessels will require ice-strengthening ratings consistent with the needs of operating in the range of ice conditions experienced in Antarctic waters.

Case study: M/S Nordkapp

The *M/S Nordkapp* was grounded on 30 January 2007. The official report from Norway, the flag state, concludes that the grounding was due to "human error (faulty navigation)".⁸ The vessel was carrying marine diesel oil (MGO), a light fuel oil, and some spilled as a result of the damage to the ship from the grounding. However, it was not possible to estimate the amount spilled with any certainty. The oil appeared to have dispersed by 3 February. During its investigation of the incident, Norway determined that although the vessel carried oil spill response equipment, the equipment was not used properly and perhaps was not the right type of equipment to contain MGO. Consequently, Norway recommended:

- Consider closely what types of equipment are appropriate for handling different types of fuel spills in Antarctica, i.e. by considering experiences gained by the various Antarctic operators, by Arctic operators and Best Available Technology (BAT) in general.
- Consider whether there is a need to strengthen the legal requirements, through global IMO rules, related to use of response equipment and the competency in using it (documented training). This is an especially relevant issue in the process relating to the consideration of national implementation of Annex VI and its provision on preventive measures in Article 3.⁹

The current draft of the Polar Code has (in brackets) requirements for developing "plans and procedures" for crew to respond to environmental emergencies and requires the company operating the ship to train the crew to use response equipment, but does not specify how such training is to be documented. The type of response equipment is not specified, only stating "Ships shall be equipped [to enable the crew] to provide shipboard damage control or perform minor hull repairs".¹⁰ Given the experiences of the *Nordkapp* incident, specific language on equipment and training should be added to the Polar Code to ensure that ships are prepared to respond to spills of oil or other harmful substances in the Arctic and Antarctic. Currently training guidelines are only specified in detail for Masters and officers, but some countries (Canada, Iceland, Norway, and the US) are advocating that "all personnel on board ships operating in polar waters should have some additional training."¹¹ Furthermore, ASOC believes that the low level of accurate hydrographic information for Antarctic waters needs additional consideration.

⁵ Republic of Liberia.

⁶ Norway. 2013. Development Of A Mandatory Code For Ships Operating In Polar Waters: Report of the correspondence group. DE 57/11/6.

⁷ Canada. 2013. Training requirements for officers and crew on board ships operating in polar waters. 44/13.

⁸ Norway. 2007. The M/S Nordkapp Incident. WP 37, rev. 1. New Delhi: ATCM XXX.

⁹ Norway 2007.

¹⁰ Norway 2013.

¹¹ Canada, Iceland, Norway, and the United States. 2013. Amendments to the STCW Convention and Code – training requirements for officers and crew on board ships operating in polar waters. STW 44/13/1.

Insung No. 1

The *Insung No. 1* capsized and sank in the Ross Sea on December 13, 2010. 21 crew members died in the most deadly incident in the Antarctic in the past decade. A report by the Korean government identifies the cause of the accident as a combination of two factors: an open net hauler shutter that allowed in water when a wave hit the vessel and a faulty water pump that was subsequently unable to pump out that water.¹² Furthermore, the master made decisions in attempting to right the vessel as it began tilting due to water incursions that caused the vessel to tilt more and eventually capsize. The emergency response and evacuation during the incident were complicated by the fact that the crew spoke multiple languages and could not communicate with each other easily.¹³ The report found that this made it difficult for the crew to communicate with each other, and that instructions for safety and emergency equipment (including life boats) were either only in Korean or in Korean and English.

Currently, fishing vessels are not included in the Polar Code. The *Insung* accident highlights the need to include these vessels, since this and another incident in January 2012 are the only recent fatal vessels incidents in the Southern Ocean. In fact, it was noted during the 2012 CCAMLR meeting that human casualties have recently been larger than incidental seabird mortality in licensed CCAMLR fisheries.¹⁴

The current draft of the Polar Code should be strengthened with respect to safety. Ship crews on non-fishing vessels are often multinational as well, and in treacherous polar environments they must be able to communicate and understand safety instructions quickly. For example, the *Explorer's* crew was composed of people from five different countries,¹⁵ and passengers themselves are often from several different countries. The current draft of the Polar Code has requirements for emergency equipment, but not for training crew or familiarizing passengers with the use of the equipment and other emergency procedures. Given the additional challenges and hazards posed by polar environments, the inclusion of such additional requirements in the Polar Code, similar to those in the Polar Guidelines, is reasonable. Enhanced safety and operational standards for all vessels operating in polar waters could help increase the safety of operations and prevent death and injury in the event of accidents.

Sparta

The *Sparta* was holed by ice on 15 December 2011 in the Ross Sea. A rescue response coordinated by New Zealand and involving Korea, Norway and the United States assisted the vessel, which made repairs and was subsequently escorted from the ice by the Korean icebreaker *Araon*. The search and rescue effort required a combined 584 hours over a period of approximately three weeks from the four main countries involved.¹⁶ No serious injuries or fatalities occurred, but some serendipity was involved. The *Araon*, which is an icebreaker, was in port in New Zealand at the time of the incident and the government of Korea accepted the request from Russia to send the icebreaker down to the Ross Sea to escort the *Sparta* out. Without the *Araon's* assistance, the *Sparta* could have been stranded in ice for much longer, since further travel through the ice without an icebreaker escort would have risked additional hull damage.

At the time of the accident, the *Sparta* was not sufficiently ice-strengthened for the heavy sea ice conditions typically found in the Ross Sea. The Russian Maritime Register of Shipping lists the vessel as of 2010 as being an "Ice 1 fishing vessel", which is defined as "independent navigation in small open ice in the non-arctic seas, short period, and in compact ice up to 0.4 m thick in a navigable passage astern an icebreaker."¹⁷

¹² Republic of Korea 2011. Follow-Up Information Regarding the Capsized Incident of the *Insung No. 1*. CCAMLR-XXX/BG/34.

¹³ Ibid.

¹⁴ Standing Committee on Implementation and Compliance (SCIC). 2012. Report of the Standing Committee on Implementation and Compliance (SCIC). CCAMLR XXXI, paragraph 5.2.

¹⁵ Republic of Liberia 2009.

¹⁶ New Zealand. 2012. Search and Rescue Incidents in the 2011/12 Season: FV SPARTA and FV JEONG WOO 2. ATCM XXXV IP 17.

¹⁷ <http://www.rs-head.spb.ru/app/fleet.php?index=887533&type=book1&language=eng>

This incident again highlights the need to include fishing vessels in the Polar Code as soon as possible so that these vessels will be subject to the strongest safety and environmental regulations. Recent rescue operations for fishing vessels have been resource-intensive, requiring a multinational response and hundreds of man-hours. Prevention of these accidents would save resources that would otherwise go towards supporting national Antarctic programs.

Conclusions and Recommendations

ATCPs have recognized that operating vessels in Antarctic waters pose additional challenges and risks, and have endorsed the Polar Code as a mechanism for ensuring safer shipping and minimizing accidents. Although some progress has been made on the Polar Code, additional rules would strengthen the effectiveness of the Code in preventing repeat performances of past accidents, many of which could have been prevented if a sufficiently strong Polar Code had been in place. Based on the case studies described above, ASOC recommends:

- Specific requirements for the equipment used in oil spill response, and for the training of crew in the use of the equipment and in the appropriate procedures for an oil spill response.
- Additional training for all personnel on ships in polar waters to equip them with basic information about the challenges of operating in polar environments.
- Support at the IMO Standards of Training and Watchkeeping (STW) Subcommittee Meetings for the Canadian proposal to ensure that advanced training for Masters and officers in charge of the navigational watch does not only take place in ice-covered waters but in waters relevant to the region where their vessels will be operating, i.e. Antarctic, or Arctic or Baltic.
- Inclusion of fishing vessels in the Code as a matter of priority.¹⁸

Based on the potential for harm to the Antarctic environment, ASOC also recommends that ATCPs work to include strengthened environmental measures in the Polar Code, including:

- Strengthened the management of sewage discharges¹⁹,
- New measures to address grey water discharges (for which there is currently no regulation, either globally or regionally)²⁰,
- Measures requiring the mandatory use of water-based stern tube bearing systems, to eliminate oily discharges.

Without the inclusion of these and other requirements, ASOC is concerned that the Polar Code in its current form will have limited value for Antarctic waters.

¹⁸ As ASOC was finalising this paper, reports were received of another incident involving the evacuation of nearly one hundred crew from a burning Chinese-flagged fishing vessel off the Antarctic Peninsula. Early reports indicate that there has been no loss of life but that environmental damage might result.

http://www.thestandard.com.hk/breaking_news_detail.asp?id=34994&icid=a&d_str=

¹⁹ No discharge of untreated sewage or grey water. Special Area Status for the Arctic and Antarctic (which will only apply to passenger vessels but will require standards be met for nitrogen and phosphorus levels). For other vessels discharge of treated sewage and grey water over a precautionary 25 nm distance from ice etc. or 12 nm if nutrient level standards are met, and no discharge in marine protected areas. Vessels should have sufficient holding tank capacity. See IP 66, Discharge of sewage and grey water from vessels in Antarctic Treaty waters, for further information.

²⁰ See footnote 12. Although some countries have expressed the view that grey water regulations for polar regions should follow the development of global grey water regulations, grey water represents a significant threat to polar waters and waiting to institute rules puts polar ecosystems at risk.

Appendix 1. Sample Still Images from Google Earth Layer of Southern Ocean Vessel Incidents

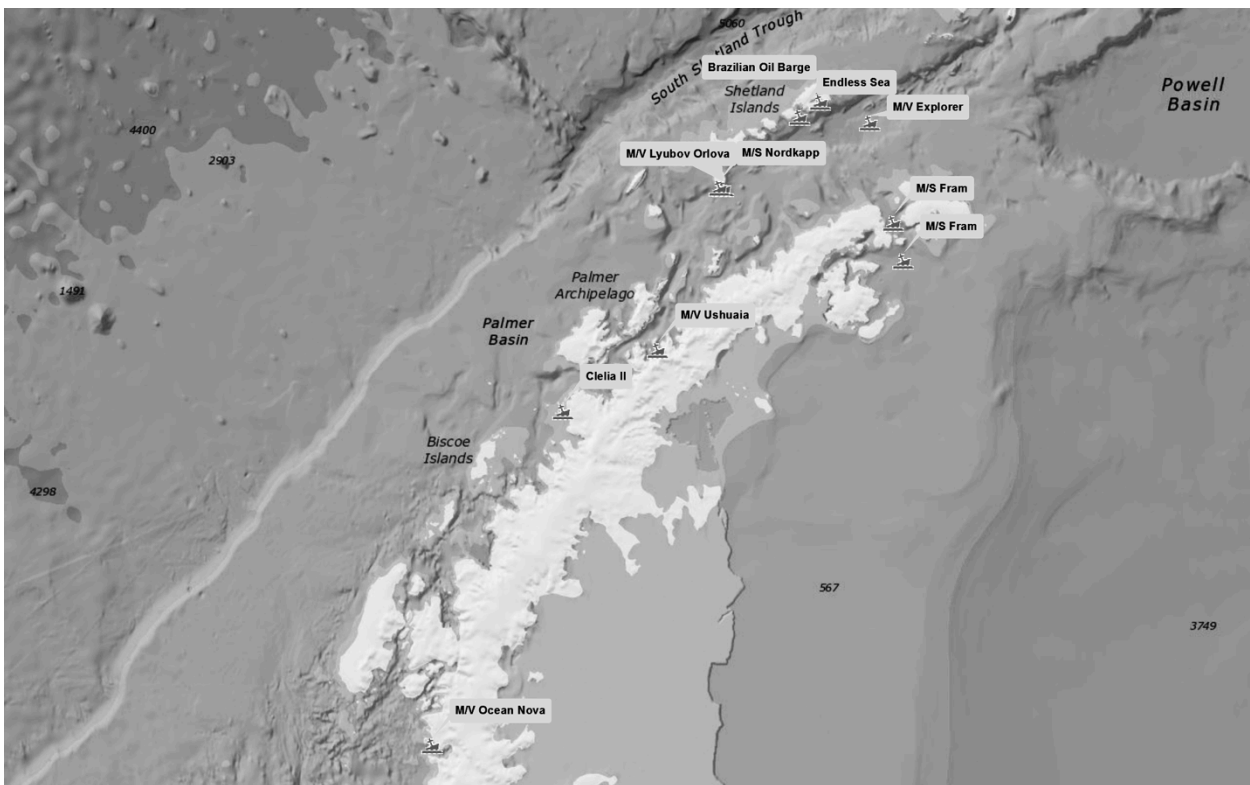


Figure 1: Incidents on the Antarctic Peninsula.

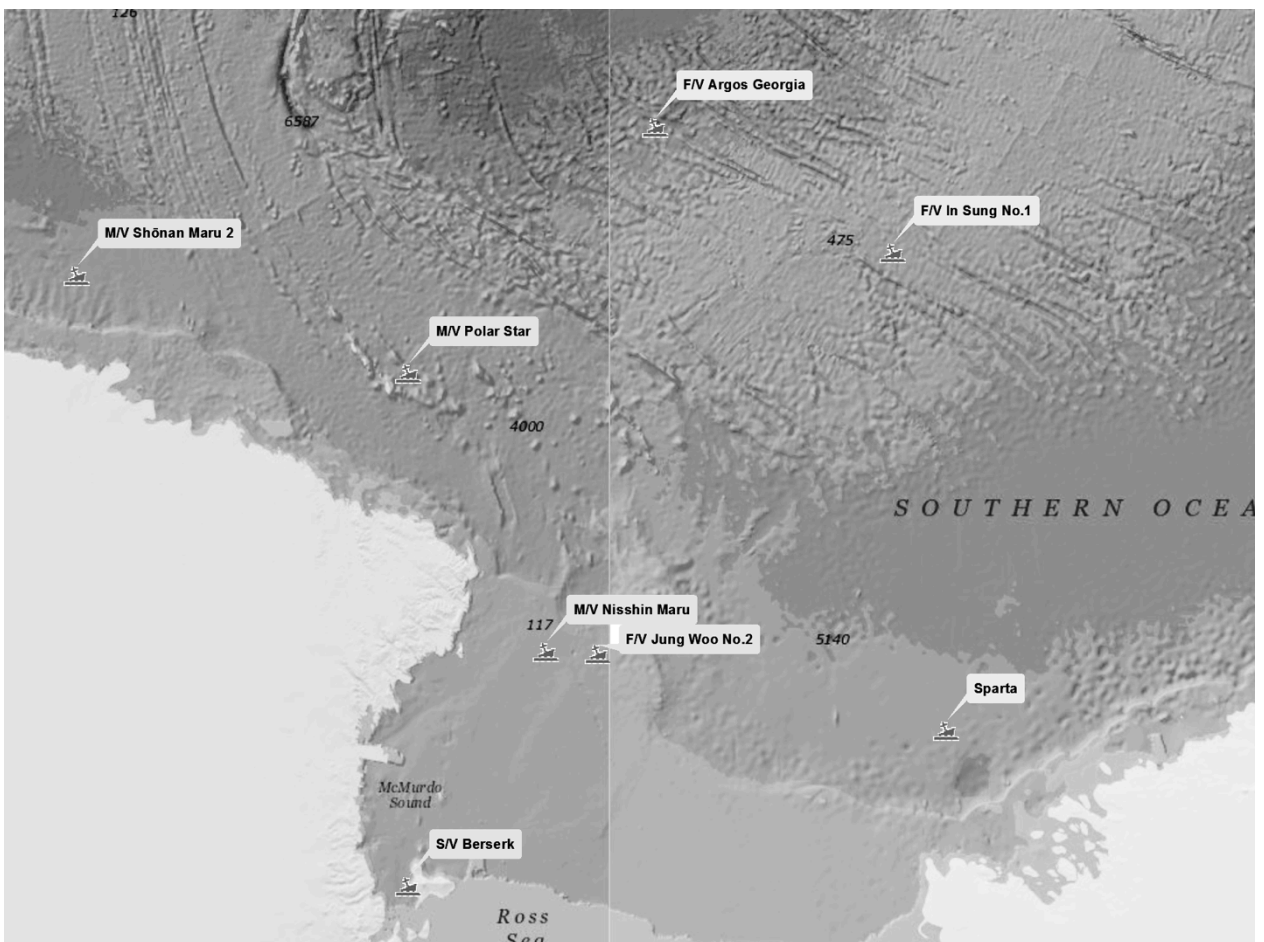


Figure 2: Incidents in the Ross Sea.