Review of International Maritime Organization (IMO) and Antarctic Treaty system (ATS) guidelines and agreements concerning ship biofouling and ballast water management

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**Working Paper presented by Australia, New Zealand and the United Kingdom**

Summary

Marine non-native species present an increasing threat to Antarctic marine ecosystems, particularly under climate change. To advance actions identified in the CEP Five-Year Work Plan and Climate Change Response Work Program (CCRWP), Australia, New Zealand and the United Kingdom undertook a review of International Maritime Organisation (IMO) and Antarctic Treaty System (ATS) guidelines and agreements concerning ship biofouling and ballast water management. This paper presents a report on the review, which provides an overview of the status and risks of marine non-native species in the Antarctic region, summarises relevant IMO and ATS provisions, and presents observations arising from the review. The co-authors recommend that the CEP considers the information presented in the report, considers requesting COMNAP and IAATO to provide up-to-date advice on the ship biofouling and ballast water management practices employed by their members, and encourages monitoring for non-native marine species.

Background

Non-native species drive ecological changes that impact biodiversity in almost all marine environments, and are one of the most pressing global conservation concerns. There is growing awareness that ship activity globally spreads invasive marine non-native species, especially through transport in ballast water and hull fouling. Concurrently, there have been developments in the availability of methods and technologies to reduce the risk of non-native species introductions associated with ballast water and vessel biofouling.

In recent years, there have been substantial developments in knowledge of the risk marine invasive non-native species present to Antarctic marine ecosystems. So far, no established populations of non-native marine species are confirmed in the waters around Antarctica. However, as highlighted in the 2022 SCAR report *Antarctic Climate Change and the Environment: A Decadal Synopsis and Recommendations for Action*, establishment is expected to become more likely as the effects of climate change become more pronounced.

The potential for ships to transport species to Antarctic waters has been the subject of discussions in the CEP since its first meeting in 1998, as a component of the Committee’s broader efforts to understand and address the environmental risks associated with the introduction of non-native species to the Antarctic region. A summary of CEP discussions on ship biofouling and ballast water management is presented in ATCM XLV Information Paper 9.

The CEP Five-Year Work Plan has long included ‘Introduction of non-native species’ as a top priority issue with a range of associated actions, including reviews of IMO biofouling and ballast water management guidelines. The current work plan (CEP XXIV Report, Appendix 1) includes a specific action to ‘[r]eview IMO report on biofouling guidelines’. The work plan also includes a further action to ‘[i]nitiate work to assess the risk of marine non-native species introductions’, and identifies several related science, knowledge and information needs.

Recognising that marine non-native species risks are expected to increase with increasing human activity, and as climate change creates less hostile conditions for human-assisted arrivals from outside the region, the CCRWP also includes a high priority action to ‘[r]eview… IMO biofouling guidelines to check adequacy for Southern Ocean and vessels moving from region to region’. Accordingly, the Subsidiary Group on Climate Change Response (SGCCR) has identified a task to ‘[u]ndertake a brief review of IMO biofouling and ballast water treatment guidelines.’

Similarly, the [CEP Non-Native Species Manual: Revision 2019](https://documents.ats.aq/ATCM42/WW/ATCM42_WW008_e.pdf) identifies the need to improve understanding of risks and pathways for non-native species introductions to the Antarctic marine environment, and to develop related guidelines (Annex: Guidelines and resources requiring further attention or development).

Review of IMO and ATS guidelines and agreements concerning ship biofouling and ballast water management

Following discussions within the SGCCR during the 2021-22 intersessional period about advancing priority actions in the CCRWP, Australia, New Zealand and the United Kingdom offered to undertake a review of IMO and ATS guidelines and agreements concerning ship biofouling and ballast water management. A preliminary report was presented to CEP XXIV (2022) in ATCM XLIV/IP049, noting that work undertaken to date had included:

* the compilation of relevant scientific papers;
* the review/summary of CEP papers and related discussions relevant to the introduction of marine non-native species, biofouling and ballast water management; and
* the compilation of related ATS and IMO guidelines and agreements, and the initiation of work for their consideration and comparison.

Australia, New Zealand and the United Kingdom continued the review during the 2022/23 intersessional period. The results are presented in the attached report, which:

* provides an overview of the status and risks of marine non-native species in the Antarctic region;
* summarises the related provisions of Antarctic Treaty system (ATS) and International Maritime Organization (IMO) instruments; and
* presents observations for consideration in further work on these issues by the CEP and SGCCR (reproduced below).

Observations

Based on the information arising from the review, Australia, New Zealand and the United Kingdom have identified the following observations:

General

1. Through the Five-Year Work Plan and CCRWP the CEP has prioritised action to understand and address the risk that vessels operating in the Antarctic region could introduce marine non-native species, including by highlighting the relevance of reviewing IMO biofouling and ballast water management requirements and guidelines.
2. The CEP and ATCM have previously received useful information from COMNAP and IAATO regarding the ballast water management practices of their member vessels, and from SCAR regarding risks associated with hull fouling, although much of that information is now over 15 years old.
3. Since that time, new National Antarctic Program and non-government vessels have been constructed and have commenced operating in the Antarctic region, including vessels that would have been designed to comply with IMO biofouling and ballast water management requirements and guidelines. Other existing vessels operating in the region would also employ related practices and technologies.
4. Up-to-date information about the biofouling and ballast water management practices of ships operating in Antarctic waters would assist the CEP and Parties to consider the possible need for further steps to address risks to the Antarctic marine environment.
5. Improved monitoring for non-native marine species would also enhance understanding of the rate of introductions, which in turn would inform environmental management of the risk through use of marine biosecurity measures.

Management of biofouling

1. Beyond the provisions of Annex II to the Environmental Protocol and general non-native species guidance provided in the CEP Non-Native Species Manual, there are no specific ATS requirements or guidelines for managing biofouling on ships operating in Antarctic waters.
2. The IMO has developed *Guidelines for the control and management of ships' biofouling to minimize the transfer of invasive aquatic species* (the Biofouling Guidelines), which are currently under review. These are general in nature rather than specific to the operating conditions or environment of the Antarctic region. The Polar Code also provides limited guidance on biofouling practices specific to operations in polar waters

Ballast water management

1. When the ATCM Practical Guidelines for Ballast Water Exchange in the Antarctic Treaty Area were agreed in 2006, the Parties noted their status as an interim measure until such time as ballast water treatment technologies were developed, as set out in the IMO Ballast Water Management Convention. The IMO Ballast Water Management Convention has now entered into force, and its ballast water treatment requirements will apply to all relevant ships by 8 September 2024.
2. The IMO has developed a suite of guidelines related to ballast water management. The Convention’s provisions and associated IMO guidelines are not specific to the operating conditions or environment of the Antarctic region. The IMO Polar Code notes that ballast water management systems should be suitable and effective for use in polar waters, but there are no specific requirements or guidance.
3. The ATCM Practical Guidelines for Ballast Water Exchange in the Antarctic Treaty Area recommend ballast water management practices similar to the requirements of the D-1 standard under the Ballast Water Management Convention, and do not reflect the ballast water treatment requirements under the D-2 standard, which already applies to some ships and which will apply to all relevant ships by 8 September 2024. As such, it may be appropriate to consider the ongoing utility of the ATCM guidelines, following the entry into force of the Ballast Water Management Convention.

Conclusions and recommendations

Australia, New Zealand and the United Kingdom invite the CEP to consider the information contained in this paper and accompanying report, to inform its ongoing work on actions in the Five-Year Work Plan and CCRWP to understand and address the environmental risks associated with marine non-native species. Related future work might include updating the *CEP Non-Native Species Manual* to provide practical guidance for ship biofouling and ballast water management in the Antarctic region, and reviewing the utility of the *Practical Guidelines for Ballast Water Exchange in the Antarctic Treaty area* following the entry into force of the Ballast Water Management Convention.

Australia, New Zealand and the United Kingdom recommend that the CEP:

1. Considers requesting COMNAP and IAATO to provide up-to-date advice to CEP 27 (2025) regarding the ship biofouling and ballast water management practices and technologies employed by their members in the Antarctic region.
2. Brings this ongoing work to the attention of the Scientific Committee for the Conservation of Antarctic Marine Living Resources (SC-CAMLR) in light of shared objectives and responsibilities for managing marine non-native species risks in the Antarctic region.
3. Encourages monitoring for non-native marine species to enhance understanding of risks and to inform consideration of marine biosecurity measures, in line with needs identified in the Five-Year Work Plan, CCRWP and Non-Native Species Manual.
4. Encourages SCAR to develop an Antarctic Environments Portal Information Summary on pathways for the introduction of marine non-native species (similar to the existing Information Summary on Pathways for the Introduction of Terrestrial Non-Native species).