

## **International Convention on the Control of Harmful Anti-fouling Systems on Ships (the AFS Convention)**

### **Introduction**

- 5.1 The purpose of the Convention<sup>1</sup> is to ban the use of organotin compounds which act as biocides in anti-fouling paints on ships, specifically tributyl tin (TBT) based anti-fouling paints. From 1 January 2008, with minor exceptions,<sup>2</sup> ships shall be required to either remove any organotin compounds that are on their surfaces or to ensure that any organotin compounds on their external surfaces are sealed to prevent their leaching into the water.<sup>3</sup>
- 5.2 The Convention will enable Australia to enforce the full range of controls on TBT-based anti-fouling paints on foreign and Australian flagged vessels.

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1 International Convention on the Control of Harmful Anti-fouling Systems on Ships, done at London on 18 October 2001.

2 The exemptions of Australian Defence Force vessels will be discussed later in the Chapter. See also paragraph 4.17 for further exclusions under the Convention.

3 Robert Alchin, *Transcript of Evidence*, p. 34.

## Anti-fouling Systems

- 5.3 Article 2.2 of the Convention defines an anti-fouling system as ‘a coating, paint, surface treatment, surface or device that is used on a ship to control or prevent attachment of unwanted organisms’.
- 5.4 Anti-fouling systems are used to prevent the growth of algae, barnacles and other marine organisms on a ship’s hull, enabling the ship’s faster movement through the water, thus reducing fuel consumption.<sup>4</sup> In the early days of sailing ships, lime and later arsenic were used to coat ships’ hulls; anti-fouling paints using metallic compounds were later developed by the chemicals industry.<sup>5</sup> Organotin-based compounds have been used since the 1970s. The Committee was advised that the most successful of these anti-fouling paints have been those which contain tributyl tin, which remains effective for up to five years.<sup>6</sup>

## Effects of TBT

- 5.5 The harmful effects of organotin-based compounds on marine life, the environment and human health were first recognised in the early 1980s.<sup>7</sup> In response to calls from the global community for international action, the International Maritime Organization (IMO) developed proposals for international regulations, which led to the conclusion of the International Convention on the Control of Harmful Anti-fouling Systems on Ships (AFS Convention).<sup>8</sup>

## Environmental concerns

- 5.6 Scientific investigations have shown that TBT-based paints pose a substantial risk of toxicity and other chronic impacts at the species, habitat and ecosystem levels.<sup>9</sup> Detrimental effects of these paints have been reported on ecologically and economically important marine organisms, such as oysters and molluscs. Further, contaminating

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4 National Interest Analysis (NIA), para. 5; *Transcript of Evidence*, p. 34.

5 Source: International Maritime Organization (IMO) Website, [www.imo.org/home.asp](http://www.imo.org/home.asp)

6 Regulation Impact Statement (RIS), para. 1.1.; R.Alchin, *Transcript of Evidence*, p.34.

7 RIS, para. 1.2.

8 RIS, para. 1.10.

9 NIA, para. 5.

sediments have been found in many port areas around the world and the Committee understands that TBT is also highly toxic to a range of marine reef biota.<sup>10</sup> The Victorian Government advised that 'the input of organotins has been listed as a Potentially Threatening Process under the *Flora and Fauna Guarantee Act 1998*.<sup>11</sup>

5.7 According to the Regulation Impact Statement (RIS), a report by the Victorian Environmental Protection Authority in 1999 considered that:

organotins threatened biodiversity and ecosystem health, eco-tourism and related activities valued at \$96 million each year and aquaculture and fisheries, particularly mollusc production valued at \$55 million each year.<sup>12</sup>

5.8 Further, 'there are strong indications that the presence of TBT-based anti-foulants at ship grounding sites may present on ongoing impediment to coral reef recovery'.<sup>13</sup> The Queensland Government commented on the damage caused to the Great Barrier Reef from inappropriate disposal of blasting-waste containing organotin compounds and from a vessel's collision which exposed the compound on the hull to the surrounding waters.<sup>14</sup>

5.9 The Committee was advised that if Australia does not adopt this Convention, the level of environmental protection in Australia will be lower than internationally adopted standards.<sup>15</sup>

## Health impacts

5.10 In recent years concerns have also been raised about the impact of TBT on human health, especially people who consume large quantities of seafood in their diet.<sup>16</sup> The possible harm to human health as a result of the consumption of affected seafood is recognised in the preamble to the Convention.

5.11 The RIS states at paragraph 1.2 that research in Australia conducted in the late 1980s found evidence of TBT contamination in Sydney rock

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10 NIA, para. 5.

11 Government of Victoria, *Submission 26*.

12 RIS, para. 1.3.

13 RIS, para. 1.8.

14 Queensland Government, *Submission 25*.

15 NIA, para. 10.

16 NIA, para. 6.

oysters. Other adverse effects have been reported on a range of invertebrate species near ports and marinas around the Australian coast.

- 5.12 The RIS states further that while the threat to human health has not yet been studied in detail, organotins may disrupt the function of human immune cells, particularly those which fight infection.<sup>17</sup> The Committee notes with concern the results of a recent United States (US) study which showed that shipyard workers exposed to TBT even for a few minutes developed 'breathing difficulties, skin irritation, dizziness, and flu-like symptoms'.<sup>18</sup>

## Implementation

- 5.13 The Committee understands that the Federal Cabinet agreed to the banning of organotin-based antifouling paints through *Australia's Oceans Policy* in 1998. The Policy commits Australia to banning the application of TBT to vessels being repainted in Australian docks from 1 January 2006.<sup>19</sup>
- 5.14 The Committee was advised that two elements have assisted with the domestic implementation of Convention<sup>20</sup>:
- The States and the Northern Territory have implemented legislation which prohibits the application of anti-fouling paint containing organotins on vessels less than 25 metres in length. In some cases this legislation extends to the application of such paints on other structures (e.g. piers).
  - The Australian Pesticides and Veterinary Medicines Authority (formerly known as the National Registration Authority for Agricultural and Veterinary Chemicals) has set in place a process for the deregistration of anti-fouling paints containing TBT.
- 5.15 Ratification of the Convention by Australia is dependent on the passage of domestic legislation: the Protection of the Sea (Harmful Anti-fouling Systems) Bill 2003 is expected to be introduced during the Spring 2003 parliamentary sittings.<sup>21</sup> The Australian Maritime

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17 RIS, para. 1.5.

18 RIS, para. 1.5.

19 RIS, para. 1.19.

20 Robert Alchin, *Transcript of Evidence*, p. 35.

21 NIA, para. 4.

Safety Authority (AMSA) will also make appropriate subordinate legislation such as Marine Orders and will also develop Instructions to Surveyors and/or Class Societies, as necessary, based on guidelines being developed by the IMO.<sup>22</sup>

5.16 Survey and certification of vessels will be required under Article 10 of the Convention. According to the National Interest Analysis (NIA):

the Australian Maritime Safety Authority and/or an authorised organisation will undertake this role as part of its flag State control function for Australian ships.<sup>23</sup>

5.17 The Committee heard that the Convention has certification requirements for two different groups of ships.<sup>24</sup> Ships of 400 gross tonnage and above engaged in international voyages will be required to undergo an initial survey before the ship is put into service and a survey when the anti-fouling systems are changed or replaced. This excludes fixed or floating platforms, floating storage units, and floating production storage and offtake units used by the oil production industry. Ships of 24 metres or more in length, but less than 400 gross tonnage engaged in international voyages are required to carry a compliance declaration signed by the owner or owner's authorised agent.

## Obligations

5.18 The Convention provides for inspection of ships and detention for violations. Each party must also prohibit and enforce violations of the Convention under its domestic law. Compensation may be provided for any loss or damage suffered if a ship is unduly detained or delayed while undergoing inspection for possible violations of the Convention.<sup>25</sup>

5.19 The RIS states that:

The Convention will not apply to any warship, naval auxiliary, or other ships owned or operated by the country and used only on government non-commercial service.<sup>26</sup>

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22 NIA, para. 21.

23 NIA, para. 16.

24 Robert Alchin, *Transcript of Evidence*, p. 35.

25 NIA, para. 19.

26 RIS, para. 1.13.

- 5.20 The Committee understands that, while IMO environmental conventions generally do not apply to naval vessels, Australian Defence Force vessels seek to comply with international environmental standards as far as practicable.<sup>27</sup> This commitment is recognised in Australia's Oceans Policy.

## Impact on States and Territories

- 5.21 Implementation of the Convention will establish a national approach to TBT-based paints by complementing current State and Territory regulations and policies.

- 5.22 The RIS states that the implementing legislation will form part of the 'Protection of the Sea' suite of acts which give effect to the IMO environmental conventions:

As such, it will apply to all State/NT coastal and internal waters, with suitable 'roll-back' provision preserving the operation of State/NT legislation.<sup>28</sup>

- 5.23 The RIS also states that existing State and Northern Territory legislation applicable to vessels less than 25 metres in length will need to be examined in detail to ensure there are no omissions, inconsistencies or duplication of requirements, although no significant difficulties are foreseen.<sup>29</sup>

- 5.24 Submissions received from three state governments (Tasmania, Queensland and Victoria) supported ratification of the Convention.

## Industry impact

- 5.25 The Committee was advised that Australian industry has been aware of the Convention and, depending on the docking cycle of ships, alternatives to TBT-based paints are already in use.<sup>30</sup>

- 5.26 In terms of the certification requirement, the RIS states that the impact on the Australian shipping industry will be minimal. Australian ships undergo regular surveys by approved Classification Societies to

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27 RIS, para. 1.19.

28 NIA, para. 20; RIS, para. 4.13.

29 RIS, para. 4.13.

30 Robert Alchin, *Transcript of Evidence*, p. 34.

verify compliance with a broad range of IMO conventions relating to safety and protection of the marine environment.<sup>31</sup>

## Costs

- 5.27 Regarding costs to the Australian Government, the NIA states at paragraph 24 that:
- costs of enforcement for the Convention will be low as established inspection and certification procedures applied to other IMO environmental conventions are already in place.
- 5.28 The Committee was advised that costs to paint manufacturers if the Convention is ratified will be minimal. According to the RIS, the largest Australian paint manufacturer estimates that anti-fouling paint represented 2 per cent of total sales.<sup>32</sup>
- 5.29 The Committee understands that alternative non-TBT-based anti-fouling paints are readily available in Australia and overseas. The RIS states that while short-term alternatives to TBT-based anti-fouling paints are likely to be copper or silicone-based, the majority have been developed for the pleasure craft market and are unsuitable for commercial trading vessels.<sup>33</sup> The Committee was advised of the concerns raised by the Australian Shipowners Association about the limited alternatives to TBT-based paints currently available in Australia; the small Australian market and lack of competition has resulted in premium costs.<sup>34</sup>
- 5.30 The RIS states that competition from the availability of more paints will reduce these costs, although there are likely to be some cost implications for shipowners in the short term, depending on a vessel's dry-docking cycle. The Committee understands that there are currently many more alternative paints available overseas, and that discussions have been held with the National Registration Authority with the view to streamlining the assessment and registration process.<sup>35</sup>

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31 RIS, para. 4.11.

32 RIS, para. 4.12.

33 RIS, para. 4.7.

34 RIS, paras 4.7 and 5.1.

35 RIS, para. 4.8.

## Consultation

- 5.31 Several parties including industry, state and territories, paint manufacturers and environmental groups have been consulted.<sup>36</sup> The Committee is satisfied with the range and extent of consultation and that all relevant parties have been adequately involved in the treaty-making process.
- 5.32 The Committee notes that ongoing consultation is planned if changes to the AFS Convention are proposed, or problems are experienced by industry with regard to the Convention.<sup>37</sup>

## Entry into Force

- 5.33 Australia signed the Convention on 19 August 2002. It will enter into force internationally 12 months after the date at which at least 25 States representing 25 per cent of the world's merchant shipping tonnage have become Parties to the Convention. As stated at paragraph 4.15, ratification by Australia is dependent on the passage of domestic legislation: the Protection of the Sea (Harmful Anti-fouling Systems) Bill 2003 is expected to be introduced during the Spring 2003 parliamentary sittings.<sup>38</sup>
- 5.34 The NIA and RIS suggest that most countries are generally in favour of this Convention and are adopting the standards outlined in the Convention regardless of whether they are contracting parties. The Committee was concerned however that, as at 30 April 2003, only three states had ratified the Convention.<sup>39</sup> The Committee was told that other states are currently undergoing the process of ratification and an 'en masse' signing is expected in due course.<sup>40</sup>

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36 These consultations were described in the NIA at paras 25-7.

37 RIS, para. 7.4.

38 NIA, para. 4.

39 These states are Denmark, Antigua and Barbuda and Nigeria. These states represent 2.12 per cent of the world merchant tonnage.

40 Robert Alchin, *Transcript of Evidence*, p. 35 and Paul Nelson, *Transcript of Evidence*, p.36.



## Concluding observations

- 5.35 The Committee recognises the leadership that Australia has demonstrated in many areas of marine environment protection and the important role played by the international maritime industry in underpinning Australia's international trade. The Committee also accepts that, without international treaty-level action, there would be insufficient impetus for the shipping and marine coating industries to restrict the use of harmful anti-fouling systems.
- 5.36 The Committee notes the comprehensive information contained in the Regulation Impact Statement concerning anti-fouling paint compound and manufacture, the increasing acceptance and availability of alternatives to TBT-based products and consultation undertaken in the development of the Convention.
- 5.37 The Committee also understands that safer alternatives to TBT anti-fouling alternatives exist and should last from between three and five years, which should be suitable for the dry-docking cycle of most ships.<sup>41</sup>

### Recommendation 5

**The Committee supports the International Convention on the Control of Harmful Anti-fouling Systems on Ships and recommends that binding treaty action be taken.**

Julie Bishop MP  
Committee Chair

June 2003

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41 Andre Mayne, *Transcript of Evidence*, p. 37.