

EXPLANATORY MEMORANDUM TO
THE MERCHANT SHIPPING (ANTI-FOULING SYSTEMS) REGULATIONS 2009
2009 No. 2796

1. This explanatory memorandum has been prepared by the Department for Transport and is laid before Parliament by Command of Her Majesty.

2. Purpose of the instrument

2.1 These Regulations ensure that the necessary enforcement provisions are in place in the UK to give effect to European Regulation (EC) No 782/2003 on the prohibition of organotin compounds on ships (“the European Regulation”). The European Regulation prohibits ships from having organotin compound based anti-fouling paints applied to their hulls or other external surfaces, and it establishes a survey and certification regime in relation to anti-fouling systems.

3. Matters of special interest to the Joint Committee on Statutory Instruments

3.1 None

4. Legislative Context

- 4.1 The adoption of the European Regulation in 2003 reflected the European Community’s serious concern about the harmful environmental effects of organotin compound based anti-fouling paints used on ships. It followed a conference convened by the International Maritime Organization (“the IMO”) in October 2001, at which the International Convention on the Control of Harmful Anti-Fouling Systems on Ships (“the Convention”) was adopted. The Convention provided that as from 1 January 2003, ships should not have such compounds applied or re-applied to them, and as from 1 January 2008 ships should not bear such compounds (or if they did, they should also bear a coating that forms a barrier to such compounds leaching out).
- 4.2 The Convention did not come into force until one year after at least 25 countries representing 25% of the world’s merchant shipping tonnage had ratified or acceded to it. This requirement was met when Panama ratified the Convention on 17 September 2007, and so the Convention came into force internationally on 17 September 2008. The Convention applies to ships of Parties to the Convention, ships operating under the authority of a Party, and ships coming into a Party’s port, shipyard or offshore terminal.
- 4.3 To encourage early ratification of the Convention by European Member States, the European Parliament and the Council of the EU adopted the European Regulation (which almost mirrored the Convention).
- 4.4 The UK is required to fulfil its obligation of co-operation under Article 10 of the EC Treaty by implementing the Regulation so far as necessary in domestic law. Once both the European Regulation and the UK’s Regulations are in place, the UK should be in a position to ratify the Convention.
- 4.5 The European Regulation itself prohibits the application of organotin compounds on ships, and the bearing of such compounds. It also establishes a survey and certification regime for anti-fouling systems on ships. These UK Regulations make necessary supplementary provision relating to the survey and certification regime, provide for inspection and detention

of ships which contravene the European Regulation, and create offences for breaches of the European Regulation and these Regulations.

Scrutiny history

- 4.6 The proposal which resulted in Regulation 782/2003 was the subject of Explanatory Memorandum (EM) 11153/02, submitted to Parliament by the Department for Transport on 15 August 2002. The House of Commons European Scrutiny Committee considered the EM on 23 October 2002. The Committee recommended that the proposal was not legally or politically important and cleared it from scrutiny (Report 39, Session 2001-02). The House of Lords Select Committee on the European Union cleared the EM from scrutiny at the 1114th Chairman's sif of 4 September 2002.

5. Territorial Extent and Application

- 5.1 This instrument applies to all of the United Kingdom. It applies to all UK ships, and to other ships in UK territorial waters or waters over which the UK has jurisdiction.

6. European Convention on Human Rights

- 6.1 As the instrument is subject to negative resolution procedure and does not amend primary legislation, no statement is required.

7. Policy background

- 7.1.1 Ships travel faster through water and consume less fuel when their hulls are clean and smooth – free from fouling organisms, such as barnacles, algae or molluscs. During the 1960s the chemicals industry developed efficacious and cost-effective anti-fouling paints using metallic compounds, in particular the organotin compound tributyltin (TBT), to prevent the build up of organisms on the surface of ships' hulls.
- 7.1.2 However, the use of TBT was later shown to cause shell deformations in oysters; sex changes (imposex) in whelks; and immune response, neurotoxic and genetic effects in other marine species.
- 7.1.3 Serious concerns about these harmful environmental effects of TBT led to the adoption of the Convention by the IMO Conference in 2001. The UK played a key role in negotiations with regards to the adoption of the Convention at IMO and is fully supportive of its aims.
- 7.1.4 The IMO Conference also passed a resolution requesting that IMO Member States should do their utmost to prepare to be bound by the Convention as a matter of urgency. The resolution also urged the relevant industries to refrain from marketing, sale and application of TBT.
- 7.1.5 In 2003 the European Regulation was adopted by the European Parliament and the Council.
- 7.1.6 European Council Directive 76/769/EEC on the Marketing and Use of Certain Dangerous Substances and Preparations had been amended in 1989 to prohibit the use of organostannic compounds in anti-fouling systems on vessels less than 25 metres in length. (For present purposes, organotin and organostannic are the same.) The European Commission adopted Directive 2002/62/EC which adapted Directive 76/769/EEC so as to prohibit the marketing and use of organostannic compounds in

anti-fouling systems. The retail of paints containing organostatic compounds has been illegal in the European Union since 2003, and this ban will have encouraged vessels to use alternative systems. (The relevant current European legislation is Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (O.J. L 396, 30.12.2006, p.1), as amended by Regulation (EC) No 552/2009 of 22 June 2009 (O.J. L 164, 26.06.2009, p.7). The relevant current UK legislation is the REACH Enforcement Regulations 2008 (S.I. 2008/2852).)

7.1.7 The European Regulation imposes on all ships in the EEA a ban on the application of organotin compounds in their anti-fouling systems. It also establishes a survey and certification regime for some larger ships (other than certain ships such as oil platforms).

Consolidation

7.2 These are the first Regulations to implement (so far as is necessary) the European Regulation, so no consolidation is required.

8. Consultation outcome

8.1 A consultation exercise was held in 2008 to seek views from the industry and other stakeholders on the draft Merchant Shipping (Anti-Fouling Systems) Regulations and associated guidance.

8.2 The Regulations, together with the accompanying Marine Guidance Note (MGN) and Impact Assessment (IA) were consulted on over the full 12 week period September 2008 to December 2008. The consultation was carried out in accordance with the Cabinet Office's code of practice on consultation.

8.3 Approximately 70 stakeholders and interested parties were sent the consultation paper about the draft Regulations. These included representatives of the shipping industry, environmental groups and other Government Departments and non Governmental bodies.

8.4 Eight responses were received to this consultation exercise. All of these indicated that those consulted were content with the proposed Regulations and appreciated the clarity that the draft Regulations had achieved.

8.5 The Maritime and Coastguard Agency has taken account of these responses and a summary of responses to the consultation was published on the website at <http://www.mcga.gov.uk>.

9. Guidance

Guidance, in the form of a Marine Guidance Note (MGN) has been developed to support these Regulations. This guidance formed part of the consultation package and will be published alongside these Regulations.

10. Impact

10.1 The impact on business, charities or voluntary bodies is minimal.

10.2 The impact on the public sector is minimal.

10.3 An Impact Assessment is attached to this memorandum.

11. Regulating small business

- 11.1 The legislation applies to small businesses.
- 11.2 To minimise the impact of the requirements on firms employing up to 20 people, the survey and certification regime established by the European Regulation only applies to ships over 400 gross tonnage (gt) and above. Ships of less than 24 metres or more in length but less than 400 gt require a self declaration signed by the owner or the owner's authorised agent.
- 11.3 The basis for the final decision on what action to take to assist small business was the comments received as a result of the consultation exercise.

12. Monitoring & review

- 12.1 The implementation of the European Regulation is subject to scrutiny from the European Commission via the European Maritime Safety Agency (EMSA). EMSA carry out regular audits of Member States in relation to European marine Regulations and Directives.
- 12.2 The impact of the policy will be kept under review in relation to international changes via the IMO's Marine Environment Protection Committee (MEPC).

13. Contact

- 13.1 **Lorraine Weller** of the Maritime and Coastguard Agency Tel: 02380 329503 or email: lorraine.weller@mcga.gov.uk can answer any queries regarding the instrument.

Summary: Analysis & Evidence

Policy Option: 2	Description: full implementation of the EC Regulation 783/2003 and AFS Convention
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COSTS	ANNUAL COSTS	Description and scale of key monetised costs by ‘main affected groups’. The total cost of using non-TBT paints is estimated to be of order of £5.1 million in total for UK-registered ships. However, it is expected that the UK Shipping industry has already incurred most of this cost as TBT paints have been unavailable in the EU since 2002/3. The additional costs for UK-registered ships due to the UK Regulations are thus uncertain, and could be between £0 and £5.1 million. The MCA expect it to be towards the lower end. About 60% of UK-registered ships could face additional survey and certification costs due to the UK Regulations; the cost is	
	One-off (Transition) Yrs		
	£ 0.4 – 5.7 Million		
	Average Annual Cost (excluding one-off)		
	£ Not quantified	Total Cost (PV)	£ 0.4 – 5.7 Million
Other key non-monetised costs by ‘main affected groups’ There will be recurring survey and certification costs. In addition, there could be costs for UK-owned ships that are not on the UK register. These costs are very uncertain and have not been quantified in this Impact Assessment.			

BENEFITS	ANNUAL BENEFITS	Description and scale of key monetised benefits by ‘main affected groups’.	
	One-off Yrs		
	£ n/a		
	Average Annual Benefit		
	£ n/a	Total Benefit (PV)	£ n/a
Other key non-monetised benefits by ‘main affected groups’ ECONOMIC: Fishing and shellfisheries could benefit. ENVIRONMENT: Reduction in harm to marine environment. UK REGISTERED: the UK will maintain its reputation as quality flag.			

Key Assumptions/Sensitivities/Risks 1. The monetised costs are very uncertain. 2. Organostannic (or “organotin”) compounds, such as tributyltin (TBT), have been restricted from being marketed and sold in the EU since 1999. Hence, it is assumed that manufacturers of AFS paints stopped the manufacture of such AFS products to coincide with the original planned coming into force date of the AFS Convention (1 Jan 2002). So it is assumed that ships that have subsequently been through a normal

Price Base Year 2008	Time Period Years 10	Net Benefit Range (NPV) £ n/a	NET BENEFIT (NPV Best estimate)
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What is the geographic coverage of the policy/option?				United Kingdom	
On what date will the policy be implemented?				October/November	
Which organisation(s) will enforce the policy?				MCA	
What is the total annual cost of enforcement for these organisations?				£ 0 (Carried out under	
Does enforcement comply with Hampton principles?				Yes	
Will implementation go beyond minimum EU requirements?				No	
What is the value of the proposed offsetting measure per year?				£ N/A	
What is the value of changes in greenhouse gas emissions?				£ N/A	
Will the proposal have a significant impact on competition?				No	
Annual cost (£-£) per organisation (excluding one off)		Micro	Small	Medium	Large
Are any of these organisations exempt?		No	No	N/A	N/A

Impact on Admin Burdens Baseline (2005 Prices)				(Increase - Decrease)	
Increase of	£ Not	Decrease of	£ 0	Net Impact	£ Increase - Not

Key: Annual costs and benefits (Net) Present

Section 1: The Issues

1. Anti-Fouling Systems (AFS) are used to cover the hull of the ship which is submerged into the water to prevent corrosion and bio-fouling. The benefits of using effective anti-fouling systems are better fuel efficiency and lower air emissions.
2. It has been common practice for ships hulls to bear anti-fouling systems containing organotin compounds, notably tributyltin (TBT), that have a biocidal action on organisms that attach themselves to the hull. However, organotin compounds used as biocides present a considerable risk to the marine environment. They have been shown to impact upon non-target organisms, be persistent in sediments and are likely to bio-accumulate.
3. Specifically, the damaging effects of organotin systems can cause localised extinctions of species and can harm commercially harvested shellfish. They can also cause sex change (imposex) in marine molluscs, which has been a particular problem with dog whelk in UK waters, reductions in disease restriction in flounder and other flatfish and neurotoxic and genetic effects in a range of other species.
4. Contamination of marine molluscs, which have a particularly high capacity for bio-accumulation, can have wide impacts. The Environment Agency has found TBT concentrations in a variety of sea mammals, birds and fish.
5. The International Maritime Organization (IMO) set about addressing the risks associated with AFS containing organotin compounds and developed the 'International Convention on the Control of Harmful Anti-Fouling Systems on Ships' ("AFS Convention") which sought to "eliminate the use of anti-fouling paints containing organotin compounds", such as TBT.

Section 2: Regulatory Background

Section 2.1: IMO Convention:

6. The AFS Convention was adopted at an International Conference convened by IMO for that purpose in October 2001. Under the AFS Convention, as from 1 January 2003 ships were not to have organotin compounds applied or re-applied to their hulls; and as from 1 January 2008 ships were not to bear such compounds or had to bear a coating that would form a barrier to such compounds leaching out.
7. A requirement of the AFS Convention was that it needed to be ratified by at least 25 countries representing 25% of the world's merchant shipping tonnage before coming into force. This requirement was met when Panama ratified the AFS Convention on 17 September 2007, allowing it to come into force one year after that date. The AFS Convention, which applies to ships of Parties to the Convention, ships operating under the authority of a Party, and ships coming into a Party's port, shipyard or offshore terminal, therefore entered into force on 17 September 2008.
8. The AFS Convention provides for the following:
 - As of 17 September 2008, ships must not bear organotin compounds which act as biocides in anti-fouling systems on their hulls or external surfaces, unless they additionally bear a coating that forms a barrier to such compounds leaching from the underlying non-compliant anti-fouling systems.

- A Survey and Certification regime associated with the above.
- The scope to introduce additional measures dealing with other harmful anti-fouling systems in future.

Section 2.2: EC Regulation 782/2003:

9. European Council Directive 76/769/EEC on the Marketing and Use of Certain Dangerous Substances and Preparations has been amended numerous times. In 1999, it was amended to prohibit the use of organostannic compounds in anti-fouling systems on vessels less than 25 metres in length. The European Commission Directive 2002/62/EC adapted the 1976 Directive in order to take into account the developments at the IMO. One purpose of European Commission Directive 2002/62/EC was to prohibit, with effect from 1 January 2003, the marketing and use of organostannic compounds in anti-fouling systems for all ships, irrespective of their length. (For present purposes, “organotin” and “organostannic” are the same.)
10. To encourage early ratification of the AFS Convention by European member states, the European Parliament and the Council of the EU adopted EC Regulation 782/2003 on the Prohibition of Organotin Compounds on Ships (which almost mirrored the Convention) on 14 April 2003.
11. EC Regulation 782/2003 provides for the following:
 - As of 1 July 2003, all EEA ships, whose anti-fouling systems have been applied, changed or replaced shall not bear organotin compounds on their hulls or external surfaces, unless they additionally bear a coating that forms a barrier to such compounds leaching from the underlying non-compliant anti-fouling systems.
 - As of the 1 January 2008, all EEA and non EEA ships shall either not bear organotin compounds anti-fouling systems on their hulls or external surfaces, unless they additionally bear a coating that forms a barrier to such compounds leaching from the underlying non-compliant anti-fouling systems.
 - A Survey and Certification regime associated with the above.
 - The scope to introduce additional measures dealing with other harmful anti-fouling systems in future.
12. The UK is required to fulfil its obligation of co-operation under Article 10 of the EC Treaty by implementing the EC Regulation 782/2003 so far as necessary in domestic law. Once both EC Regulation 782/2003 and the UK Regulations are in place, the UK should be in a position to accede to the AFS Convention. The UK played a key role in negotiations with regards to the adoption of the AFS Convention at IMO and is fully supportive of its aims.

Section 3: Intervention

13. The UK Regulations provide the legal framework for the offences and penalties which will be used to enforce the provisions of EC Regulation 782/2003 on the prohibition of organotin compounds on ships in the UK. Having the UK Regulations in place together with the EC Regulation will mean that the UK will be able to accede to the AFS Convention. (It is necessary that the UK should have legislation in place to enable it to meet its international obligations under the AFS Convention as soon as it accedes to the Convention.)

14. The effects of organotin AFS on the marine environment and potentially the economy are well documented and reported. It is important that the UK Government is seen to be taking a proactive approach.
15. There are also numerous domestic and European water quality standards for bathing waters and other coastal areas that have to be complied with. A reduction in the impacts of harmful AFS from ships will help the United Kingdom to meet these standards.
16. It is not feasible for the United Kingdom to attempt to reduce the harmful impacts of organotin compounds without regulation (e.g. through voluntary measures, guidance). There is no scope for not fulfilling UK obligations under European law. Furthermore the UK played a key part in negotiating the AFS Convention. So to not implement EC Regulation 782/2003, and thereby to hinder the UK's ability to ratify the Convention, would reflect badly. This immediately rules out such measures as creating voluntary guidelines for the use of alternative TBT-free AFS and raising awareness in the shipping industry through targeted campaigns, as opposed to implementing new legislation.
17. Supporting documentation associated with the UK Regulations, including a Marine Guidance Note, will be used to educate and inform ship owners/masters and relevant bodies about the requirements of the UK Regulations.

Section 3.1: Implementation and delivery plan

18. It should be noted the retail of paints containing organostannic compounds has been restricted in the European Union since 1999; this ban will have encouraged vessels to use alternative systems. With the introduction of the EC Regulation 782/2003, there was a further incentive for UK ship owners to ensure that they did not use paints containing organostannic compounds.
19. The Maritime and Coastguard Agency (MCA) issued a Marine Information Note (MIN) 291 in July 2007 to clarify the requirements of EC Regulation 782/2003 and to provide the shipping industry with information as to the UK Regulations which would in due course establish penalties and offences for ships not complying.
20. The coming into force of the AFS Convention in September 2008 should also have prompted a large percentage of ship owners to ensure that their ships complied with its requirements. Many UK-registered ships¹ are already certified to be free of non-compliant AFS, or have had a barrier coat applied to prevent underlying non-compliant AFS from leaching into the marine environment.
21. Against this background, it is not expected that compliance with the UK Regulations should entail any practical difficulties for industry.

Section 4: Options

Section 4.1: Option 1 - Make no change to existing United Kingdom legislation – the “Do Nothing” option

22. With this option there would be no change to current UK legislation. This could negligibly reduce elements of the economic cost to the domestic UK marine industry. However, in the EEA, UK-

¹ The UK Regulations apply to "United Kingdom ships" (which covers not only UK registered ships but also ships which are not registered anywhere but which are British owned) and to other ships in UK waters. But economic data are only available in relation to UK registered ships, and therefore this IA focuses on the impact on those ships.

registered ships trading outside the UK are expected to comply with the EC Regulation. And now that the AFS Convention is in force internationally, UK-registered ships trading outside the UK would be required to comply with the relevant provisions of the Convention. The implication of the AFS Convention seems to be that if a ship does not have an AFS certificate when it should have, then it would not be able to operate internationally.

23. If the UK did nothing, it would not be meeting its European Community obligations and would be likely to face infraction proceedings for failing to implement Community law. In addition there would be the significant loss of reputation within the international maritime community. Infraction proceedings would result in fines, the cost of which would be borne by the UK Government. The level of fine would be decided according to the perceived seriousness of the infraction.
24. Any financial advantage gained through the “do nothing” option would be eroded rapidly as UK-registered vessels trading internationally without complying with the EC Regulation and the AFS Convention would be liable to be detained. Any detention or delay would be likely to have a severe financial impact on the owners, compared with the cost of compliance.
25. This would nullify any incentive for an owner to retain a ship on the UK flag that non-compliance could offer. In addition, widespread non-compliance with international regulations by UK-registered ships could impact on the UK flag’s popularity with international ship-owners as a quality register.
26. Detentions due to non-compliance would affect the UK’s rating on the Paris Memorandum on Port State Controls White List (an indicator of a high quality flag, based on low rates of detention) and could result in the UK slipping to the Grey List (an indicator of a lower quality flag, based on higher rates of detention). This could impact upon the UK Register, concerned owners could decide to flag out and this could damage the UK’s international reputation as a result.

Section 4.2: Option 2 – Implement the EC Regulation 782/2003, so as to be able to accede to the AFS Convention

27. This is the recommended option as it means that the UK will be complying with its European Community obligations, retain its effectiveness within the international maritime community and ensure that the UK shipping industry can continue to trade internationally. It will also help to negate the effects of harmful anti-fouling systems on UK and international waters.
28. With the UK implementing the EC Regulation 782/2003 and then acceding to the AFS Convention, UK ship-owners would be on a level playing field with respect to all other internationally trading vessels. This will protect the UK’s reputation internationally. Furthermore it will provide protection to UK waters from the harmful effects of prohibited anti-fouling systems.

Section 5: Post-implementation Review

29. The implementation of the UK Regulations will be reviewed domestically through the MCA’s normal contact with industry and NGO groups at regular stakeholder meetings. In addition the UK is active in ongoing work within the international community to tackle pollution from shipping both within the IMO’s Marine Environment Protection Committee (MEPC) structure and through other UN and EU initiatives. For all of these bodies the input of the industry and NGOs is sought when developing a UK position both through standing meetings before IMO Committee meetings and ad hoc meetings.

Section 6: Costs and Benefits of Option 2

Section 6.1: Base Assumption

30. UK-registered ships which trade within Europe have had to comply with the EC Regulation 782/2003 since July 2003. The EC Regulation is binding and directly applicable in the UK (unlike a Directive which requires domestic legislation in order to take effect in the UK).
31. The UK Regulations are needed purely to ensure that the EC Regulation is workable and enforceable in the UK. Hence, the UK Regulations provide for offences and penalties for breach of the EC Regulation, and for such matters as who is an officer “duly authorised by the administration of a Member State” for the purposes of the EC Regulation in the UK.

Section 6.2: Benefits

32. Potential economic benefits could include the elimination of shell deformations in commercially grown oysters and effects on growth of farmed juvenile bivalve molluscs. There could be a reduction in costs to shell fisheries in the UK arising from such scenarios.
33. The environmental benefits of the UK Regulations will arise from the contribution of the UK Regulations to the reduction and ultimately the eradication of the harmful impacts of organotin AFS upon the marine environment in the UK by legislating against use of such systems. These include sex change (imposex) in marine molluscs, which has been a particular problem with dogwhelk in UK waters, reductions in disease resistance in flounder and other flatfish and neurotoxic and genetic effects in a range of other species. Significantly, the impacts of organotin compounds can be bio-accumulative, for example when contaminating molluscs, which have a particular capacity for bio-accumulation. The Environment Agency has found TBT concentrations in a variety of sea mammals, birds and fish.
34. By implementing legislation that prohibits the use of harmful anti-fouling systems on UK vessels, the UK Government will be fulfilling its European obligations. If the UK does not implement the European obligation it will be in breach of Community law and therefore liable to substantial European Community fines.
35. The shipping industry is a major contributor to the UK economy and this is well recognised by the UK Government. Since 1998 the UK Government has made a concerted effort to grow the UK fleet. The fleet has increased 4 fold creating more employment opportunities for UK cadets, new companies being created in the UK and further investment within the industry. If the UK does not implement the EC Regulation (which closely reflects the provisions of the AFS Convention), there could be a decline in the UK Register.
36. There could also be a potential reduction in the costs associated with the disposal of sediments which have suffered contamination due to organotin anti-fouling systems.
37. It has not been possible to monetise these benefits in this Impact Assessment as quantitative evidence is not available.
38. The text discussing the Benefits of Option 2 in this section of the Impact Assessment reflects the wider literature. This information draws on a number of technical and non-technical papers that are in the public domain, including the following references:
 - Langston, W.J. and Burt, G.R. (2007) ‘A review of TBT sediment data in the Fal and Helford SAC’, a study carried out on behalf of the Environment Agency;
 - Batt, J.M. ‘The World of Organotin Chemicals: Applications, Substitutes and the Environment’²;

² <http://www.ortepa.org/WorldofOrganotinChemicals.pdf>

- RPA (2005) ‘Risk assessment studies on targeted consumer applications of certain organotin compounds; prepared for the European Commission’³;
 - European Commission (2009) ‘Commission Staff Working Document: Accompanying document to the Proposal for a Commission Decision amending Council Directive 76/769/EEC as regards restrictions on the marketing and use of organostannic compounds for the purpose of adapting its Annex I to technical progress’⁴;
 - European Commission (2006) ‘Maritime safety: prohibition of organotin compounds on ships’⁵;
 - Centre for the Environment, Fisheries & Aquaculture Science (YEAR?) ‘Anti Fouling Paint containing TBT Kills Marine Life Are You Contributing’;
 - OSPAR Commission (2005) ‘North Sea Pilot Project on Ecological Quality Objectives: Background Document on the Ecological Quality Objective on imposex in dog whelks *Nucella lapillus*’;
 - Sonak, S. (YEAR?) ‘Assessing impacts of TBT on multiple coastal uses – a summary’, TERI;
 - Tidal Waters, Scottish Environment Protection Agency. (2003) ‘Assessment of TBT Impacts and Concentrations in Loch Ryan, Scotland’;
 - Ministry of Transport, Public works and Water Management. (YEAR?) ‘An issue of substance TBT in marine antifouling paints’; and
 - ORTEP (YEAR?) ‘Further Updates on the Toxicology of Tributyltin, including Assessments of Risks to Humans, Wildlife, and Aquatic Life’.
39. Other relevant sources include International Maritime Organization papers from MEPC 42 through to MEPC 59, papers in the CQD Journal for the Maritime Environment Industry, documents issued by the major coating and paint manufacturers, and other OSPAR Documentation.

Section 6.3: Policy Costs

40. UK-registered ships which trade within Europe have had to comply with the EC Regulation 782/2003 since July 2003. Hence, the MCA expect that the majority of UK-registered ships should have applied a compliant AFS or a sealer coat to prevent leaching from underlying non-compliance systems. Therefore, it is not expected that there will be significant new policy costs for UK-registered ships as a result of the introduction of the UK Regulations.
41. The economic costs associated with EC Regulation 782/2003 would be borne by the UK shipping industry in terms of the application of compliant AFS and the application of sealer coats to prevent leaching from underlying non-compliant systems. Alternative anti-fouling paints, capable of providing an equivalent level of protection, are available but are approximately three times more expensive⁶.
42. At the time of undertaking this analysis in 2008, there were 1,534 UK-registered ships of varying sizes (sourced from the Fleet Management System) to which the UK Regulations will apply.

³ http://ec.europa.eu/enterprise/sectors/chemicals/files/studies/organotins_3rd_report_16_sept_2005_en.pdf

⁴ http://ec.europa.eu/governance/impact/ia_carried_out/docs/ia_2009/sec_2009_0706_2_en.pdf

⁵ http://europa.eu/legislation_summaries/environment/water_protection_management/l24256_en.htm

⁶ Evidence provided by the British Coatings Federation.

43. The MCA assume that the majority of these ships will have already applied compliant AFS due to the fact that TBT has been restricted as an active biocide in anti-fouling paints in the EU and prohibited under the EC Regulation 782/2003 from application to the ships hull since 2003. In this timescale, it is assumed that most ships would have replaced their AFS under normal routine operational maintenance. Within the EU, it is assumed that ships would then have had to apply a non-TBT AFS due to no TBT products being available on the market in the EU. This would bring these ships into line with EC Regulation 782/2003.
44. However, there is no evidence on the extent to which compliant AFS have already been applied to UK-registered ships as a result of EC Regulation 782/2003. Full compliance with EC Regulation 782/2003 cannot be assumed in the absence of the UK Regulations. Noncompliant ship paints could be sourced either unknowingly or unscrupulously on the global market. The policy costs of the UK Regulations are thus uncertain.
45. The total costs for UK-registered ships of not being able to use a TBT AFS have been estimated by the MCA. First, the 1534 UK Registered ships are divided into 3 Wetted Surface Area (WSA)⁷ categories (Small, Medium and Large). Second, the additional cost of using non-TBT paint compared to TBT paint (per ship) has been estimated for each WSA category⁸. Third, the total cost for each WSA category has been estimated.

No. of Ships by (WSA size)	Additional Cost of using non TBT Paint compared to using TBT Paint (£ per ship)	Total cost (£ Million)
1,102 (300 m ²)	200	0.2
300 (3,000 m ²)	3,000	0.9
132 (12,000 m ²)	30,000	4.0
1,534 (Total)		5.1

46. The extent that these costs will be incurred as a result of the UK Regulations is uncertain (e.g. the extent that sealer coats could be used is uncertain). Therefore, the above estimate suggests that the additional costs for UK-registered ships as a result of the UK Regulations could be in the range of £0 to £5.1 million. As outlined above, the MCA expect that the additional cost will be towards the lower end of this range in practice.
47. It should be noted that UK-owned ships only make up around 65%⁹ of UK-registered ships. Therefore, this suggests that only a proportion of the additional costs of using of using non-TBT Paint instead of TBT Paint, on the UK-registered ships would be incurred by the UK-owned ships, and would consequently be a cost for the UK. However, the distribution of the additional costs between ships is very uncertain and the cost to the UK-owned ships cannot be quantified in this impact assessment.
48. The costs for the UK will also include any additional costs that will be incurred by UK-owned ships that are registered outside the UK. The extent that such ships will incur additional costs as a result of the UK Regulations is very uncertain (e.g. it will only include the proportion of such ships that operate in UK waters and are not otherwise incentivised to comply with EC Regulation 782/2003), and it has therefore not been possible to quantify this cost.
49. As these costs will be borne by all impacted sectors in Europe, the UK Shipping and paint industry sectors will not be put at a competitive disadvantage. These costs are expected to fall in

⁷ Formulae used for WSA Denny Mumford.

⁸ Evidence provided by the British Coatings Federation.

⁹ Registry of Shipping, Fleet Management Statistics based on vessels over 24m

the long-term as the paint supply market adapts to and innovates in response to the ban on organotin compounds and the demand for alternative coatings increases.

50. Regarding the impact on the UK paint industry, this Impact Assessment was subject to a full 12 week public consultation which included representatives from the UK paint industry. No specific question was posed about the impact on the paint supply market; although one Federation representing paint suppliers did respond giving positive support for the UK Regulations.

Section 6.4: Administrative Costs

51. Under ‘Option 2’, the UK maritime industry will face the administrative costs of survey and certification of the ship to show compliance with the UK Regulations and EC Regulation 782/2003.
52. Anti-fouling certification could cost between £376 and £658 per ship, based on the £94 hourly rate charged by the MCA at the time of calculation, and an assumed workload of 4-7 hours¹⁰ on average.
53. Of the 1534 ships on the UK Register, 599 fall in to the category of self declaration¹¹, leaving 935 ships on the UK Register which require survey and certification.
54. The total administrative costs for the 935 UK-registered ships which require survey and certification have been estimated at up to around £0.4-0.6 million. This range provides an indication of the uncertainty over how many hours work is needed to achieve certification, reflecting the assumptions that have been made.

No. of Ships	Average Survey cost (£)	Total Cost (Million £)
935 ¹²	376 - 658 ¹³	0.4 - 0.6

55. It should be noted that by the time of writing, the MCA anticipate that a large proportion of these vessels will have already undertaken the survey and certification work for international trading purposes. However, the extent to which these costs have already been incurred is uncertain. The administrative costs that will be incurred by UK-registered ships as a result of the UK Regulations are thus uncertain.
56. As for the policy costs, the cost to the UK is expected to differ from this estimate. It is expected that only a proportion of the administrative costs for UK-registered ships would be incurred by UK-owned ships, and it is possible that some administrative costs would be incurred by UK-owned ships that are not included on the UK register. It is not been possible to quantify these costs.
57. Survey and Certification costs are recurring, and will be incurred each time an AFS is replaced. However, AFS have different operational lifetimes depending on the vessel in which they are applied and its operation. The average operational lifetime is thus uncertain. In addition, it is possible that the renewal of certification could require less work than the initial certification, although no evidence is available on this. Therefore, the recurring survey and certification costs are very uncertain, and these costs are not quantified in this Impact Assessment.

¹⁰ As it can not be assumed that all paper work will be correct and present, and the surveyor may need to attend a dry docking for verification, the workload may vary. It is assumed that this could take between 4 – 7 hours on average. This may be an under- or over-estimate.

¹¹ Ship of more than 24 metres or more in length, but less than 400 gross tonnage.

¹² Total UK fleet 1534, of that, 935 must comply with UK survey & certification requirements

¹³ The total cost is estimated by multiplying £94 by the range of average survey times identified above.

58. The UK Regulations are likely to affect only a small volume of charities and voluntary organisations, such as sail training organisations. However, the impact will be the same upon all users of anti-fouling systems and is not considered by the MCA to be unreasonable.

Section 7: Small Firms Impact Test

59. The UK Regulations legislate for an AFS survey and certification regime. This necessarily means that the proposal will have an effect commensurate with the size of the fleet operated by a company, rather than with the size of the company.
60. MCA has worked to ensure that the UK Regulations have been formally consulted upon with small, medium and large businesses. MCA contacted the Small Business Register in order to identify small firms in relation to AFS, but no more firms were identified than were already on the formal consultation list. A number of consultees, including the British Chamber of Shipping, RYA and BMF have small business members, and a number of the specific consultees would be classified as small or medium enterprises.
61. This Impact Assessment was subject to a full 12 week public consultation. Within the covering consultation document, the question was asked of consultees whether the assessment of the regulations impact upon small firms was accurate. No responses were received on this question.

Section 8: Competition Assessment

62. As the UK Regulations are a technical, flag-neutral measure, implementing and not going beyond the EC Regulation 782/2003 or the AFS Convention, it is not expected that the legislation will have a significant impact on competition.

Section 9: Race Equality

63. The UK Regulations are applicable to all seafarers on UK ships irrespective of their race, nationality or ethnic origin.

Section 10: Disability Equality

64. The UK Regulations are applicable to all seafarers on UK ships. They do not however contain any provisions relating to disability equality as the fitness or otherwise of a seafarer to work on a ship is covered by separate regulations.

Section 11: Gender Equality

65. The UK Regulations are applicable to all seafarers on UK ships irrespective of their gender.

Section 12: Human Rights

66. The UK Regulations do not raise any human rights issues.

Section 13: Enforcement, Sanctions and monitoring

67. Enforcement would be carried out by the MCA as part of its existing enforcement activities.
68. The UK Regulations provide for inspection of ships. The provisions are in line with normal international maritime law.
69. The UK Regulations also include provision for detention of a ship in certain circumstances e.g. where a surveyor of ships has clear grounds for believing that organotin compounds which act as biocides have been applied to a ship on or after the Regulations coming into force, in contravention of Article 4 of the EC Regulation 782/2003.
70. The UK Regulations would provide for sanctions for non-compliance with the EC Regulation 782/2003. This will include provisions to fine the relevant parties an amount not exceeding the statutory maximum where there is a summary conviction. Where a person is convicted on indictment, the UK Regulations do not impose any limit on the level of the fine. These penalties are in line with those for other maritime pollution offences and are considered to be proportionate to the nature of the offences.
71. The Home Office and the Scottish Government Justice Department have indicated their satisfaction with these provisions.

Section 14: Consultation process

72. A full 12 week public consultation was issued in September 2008 on the draft UK Regulations. The consultation comprised a covering letter providing a background and summary of the Regulations together with specific questions on the consultation package. The documents which accompanied the letter were the draft UK Regulations, a Marine Guidance Note and a signed Impact Assessment (IA).
73. As a result of consulting over 70 bodies and organisations representing the shipping industry, environmental groups, government and non government bodies the MCA received a total of 8 replies. Only 1 reply commented on the IA. This comment was taken into consideration; however the MCA did not feel that this warranted changing the IA.

Specific Impact Tests: Checklist

Type of testing undertaken	<i>Results in Evidence Base?</i>	<i>Results annexed?</i>
Competition Assessment	Yes	No
Small Firms Impact Test	Yes	No
Legal Aid	No	No
Sustainable Development	No	No
Carbon Assessment	No	No
Other Environment	No	No
Health Impact Assessment	No	No
Race Equality	Yes	No
Disability Equality	Yes	No
Gender Equality	Yes	No
Human Rights	Yes	No
Rural Proofing	No	No