

Meeting of the Focal Points of the
Regional Marine Pollution Emergency
Response Centre for the Mediterranean
Sea (REMPEC)

REMPEC/WG.18/10/3
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Agenda Item 10.3

PREVENTION OF POLLUTION FROM PLEASURE CRAFT

Note by REMPEC

Introduction

1. Countries of the Mediterranean have, in recent years, encouraged the use of their marine environment for the recreation of their peoples and for the enjoyment of visitors. Nautical tourism and pleasure craft operations in general represent a significant and expanding source of national revenue, but also pose a substantial threat to the environment if left unchecked. Mindful of the importance of sea use and water activities in relation to the tourism product, and with a view that beaches remain clean and that the marine ecosystem will not sustain irreversible damage from this sector of society, as well as to ensure a holistic approach to the work of marine environment protection, the Eleventh Ordinary Meeting of the Contracting Parties to the Barcelona Convention (Malta, 27 - 30 October 1999, UNEP(OCA)/MED IG.12/9), within the context of sea-based pollution prevention and control activities approved the following two recommendations:

“To provide the necessary support to enable the secretariat to start the process of considering the issue of the prevention of pollution from non-commercial pleasure-craft activities)” and

“To request the Secretariat (REMPEC and MEDU) to endeavour to obtain the necessary external funds to start the process of considering the issue of the prevention of pollution from non-commercial pleasure-craft activities”.

General

2. A pleasure craft can be broadly defined as a vessel or boat, not registered in a shipping or commercial vessel register, used for the purpose of leisure or recreation both privately owned and on charter, propelled by an engine(s) or sails or both and includes yachts, power and sail boats, sport fishing boats, diving support boats and water-jet drives and other small craft. The spectrum of vessels therefore encompasses a wide range of craft from small craft used only to get out to the nearest fishing bank to the larger vessels that perform extensive movement.

3. There is a notion that during the past years, the pleasure craft fleet in the Mediterranean region has increased, with a concomitant increase in the engine power of these crafts. Furthermore, because some of these pleasure craft have overnight accommodation facilities, there is also the notion of an increase in the transboundary movement of such craft since they enter a country's national waters from neighbouring countries, as well as from outside the region.

4. Environmental problems arising from activities of non-commercial pleasure craft include:

- discharge of sewage;
- discharge of garbage;
- discharge of oil and oily wastes
- exhaust emissions;
- use of anti-fouling paints;
- physical damage to marine habitats or organisms.

5. Since most use of non-commercial pleasure craft takes place during the summer season, it is reasonable to assume that any of the impacts from the environmental problems listed above will be greater during this period than if the impact would be more evenly distributed throughout the year.

Discharge of Garbage

6. The discharge of garbage from pleasure craft is becoming a concern and attention has increasingly focused on the effects of plastics and other persistent materials. Coastal areas such as beaches and underwater seascapes such as coral reefs can be spoiled aesthetically by the presence of garbage in general.

7. A range of impacts has also been associated with the discharge of garbage, specifically plastics, such as:

- entanglement with plastic debris by marine organisms such as marine mammals, sea birds and fish;
- ingestion of plastic debris by marine organisms;
- smothering of fauna and flora;
- contamination of the sea floor by micro plastic litter contaminated by heavy metals;
- colonization of drifting plastics and synthetics by epiphytic biota, e.g. algae, bryozoans, bacteria, sponges, etc., promoting the long distance transfer of organisms creating the potential for infecting areas with non-indigenous species;
- aesthetic spoiling of beaches and underwater features.

Discharge of Sewage

8. Sewage can mainly have two negative consequences which should be distinguished. It can have a eutrophying effect (causing over-enrichment of the sea with nutrients) and it can cause bacteriological pollution resulting in a sanitary nuisance, posing a risk of infection through coliform bacteria.

9. There are, in principle, two sanitation systems for recreational boats: a portable and a permanent system. The portable system consists of a receptacle with a bottom section that holds the sewage. Some form of disinfectant is usually added to kill the odour producing bacteria. Portable toilets are used on boats with overnight accommodations but limited space, or on older boats. Depending on the local infrastructure, it is reasonable to assume that portable toilets are either emptied into the sea or into toilets at marinas. It is also common for sewage to go straight into sea from small boats.

10. The permanent system either has a holding tank for the sewage, or discharges straight out into the sea. The system with a fixed holding tank has become more common and is often standard on the newer boats with a permanent sanitary system. Even when marinas may have facilities for emptying fixed tanks, certain pleasure craft have their foul water outlets below the waterline and no connection for pumping sewage from the holding tank to a shore reception facility or to a collecting

truck. Pleasure craft are also being equipped with built-in septic tanks. Pleasure craft equipped with septic tanks will usually empty them while underway. The pumps used to empty a holding tank generally grind up the sewage in one way or another, so that it normally sinks to the bottom.

11. Related to the issue of the discharge of sewage is the environmental impact of disinfectant liquids used, in particular, on pleasure craft with portable toilets. Boats that have toilets with built-in holding tanks should strictly speaking not require disinfectant liquids since there is no odour problem although these products are still sometimes used. The active ingredients of these disinfectants are not usually persistent but could be harmful to the marine environment if the foul water containing the disinfectants is discharged in areas of high biodiversity and poor water circulation.

Discharge of Oil and Oily Wastes

12. In the absence of reception facilities, motorized pleasure craft will discharge engine oil and oily bilge water to the marine environment. There is therefore a need to provide reception facilities in marinas, anchorages and related facilities relevant to such recreational craft, including tanks for waste oil, oily residues including cleaning rags and bilge pads, as well as for solvent waste and degreasing agents. It is however important to tailor any reception facility to the requirements of the users and the effort expended in setting up waste management facilities and plans to be proportional to the number and types of boats that are expected to use the facilities.

13. Related to the issue of available reception facilities is a proper storage area for the delivery of used batteries and out-of-date distress flares.

Exhaust Emissions

14. Within non-commercial pleasure craft, the engine output ranges from small outboard motors to the more elaborate diesel engines.

15. Two factors which will have bearing on the impact of exhaust emission will be the type of fuel used and the degree of utilization which will vary since some will only utilize their boat a few hours a week while others would use their boat for longer periods.

16. Pleasure craft are usually equipped with either high revving diesel engines or with two- or four-stroke petrol (gasoline) engines. For the most part, inboard petrol engines can be regarded as four-stroke engines, while two-stroke engines dominate the outboard type of engine, although four-stroke engines do exist among the outboard type. The reason for the dominance of two-stroke engines when it comes to outboards is their low weight and small dimensions. This is usually considered to outweigh their comparatively higher fuel consumption. Boats with overnight accommodations can also have heating systems in the form of petrol or diesel heaters and their use would contribute to the overall environmental impact from exhaust gases. In theory, gas turbine engines can also be used, but vessels using this type of engine probably represent a very small portion of the total vessel stock.

17. Non-commercial pleasure craft would utilize fuel that is usually bunkered at ordinary filling stations or marinas and although larger vessels may get their fuel from bunker boats, it is possibly the same grade of fuel as that found at the filling stations and marinas.

18. Exhaust emissions are directly proportional to fuel consumption whilst it is reasonable to assume that the emission profile will depend on the type of fuel used. This will consist of varying ratios of nitrogen oxides, hydrocarbon particulates, carbon oxides, lead and sulphur dioxide. Possibly the most significant air pollutants emitted by a two-stroke petrol engine are hydrocarbon particulates and carbon oxides. Nitrogen oxide emissions are much smaller owing to the low combustion temperature which is associated with poor combustion efficiency of this type of engine. Hydrocarbon particulates, carbon oxides and other emissions from a two-stroke engine are largely due to the addition of oil in the fuel. A four-stroke engine does not need oil in the fuel and therefore has lower emissions of these types of substances. Reduction of exhaust emissions, as far as carbon oxides, hydrocarbon particulates and nitrogen oxides are concerned, can be obtained by using a catalytic converter. On the other hand, the diesel engine has an entirely different emission profile than the

petrol engine. Owing to its high efficiency, and thereby high combustion temperature, hydrocarbon particulates and carbon oxides are small and it is the nitrogen oxide emissions which are usually of concern.

19. As with other exhaust gases, with regard to the sulphur and lead emissions, it can be reasonably assumed that since many owners of pleasure craft fetch their own fuel from ordinary filling stations or marinas, the sulphur and lead content of the emissions will depend on the origin of the fuel itself.

Use of Anti-fouling Paints

20. Anti-fouling paints are designed to protect the hulls of vessels from the settlement and growth of marine organisms. Anti-fouling paints work by releasing, in a controlled way, small quantities of a substance which is toxic to the fouling organisms. Free from such fouling organisms, a vessel travels faster through water, consuming less fuel and saving on maintenance costs. Many formulations marketed today contain tributyl tin as the active ingredient, which is chemically bonded to the polymer base (self-polishing co-polymers). There are also other formulations on the market with other substances as the active ingredients, e.g. copper-based coatings and silicon-based systems, however there is still a preference for the well proven tin-containing anti-fouling paints.

21. Notwithstanding the attributes of organotin-based anti-fouling paints, in leaching from the paint film, the tributyl tin escapes to the environment where it can build up to dangerous levels, particularly in areas where water circulation is restricted and at these concentrations, it has been found to be toxic to marine species at low concentrations. Inevitably, areas at risk from pollution from anti-fouling paints are estuaries and port areas with high densities of shipping, including pleasure craft. In the 1980s, high concentrations of tributyl tin were reported in coastal areas around the world, including the Atlantic coast of France, the Mediterranean Sea, Bahrain, the North Sea off the United Kingdom, Canada, the United States and Australia. As a result, a number of countries, including some Mediterranean states, introduced controls to limit the use of tributyl tin-based paint on small vessels and it is customary that in these countries the use of these anti-fouling paints is usually prohibited on vessels of less than 25 metres length.

Physical Damage to Marine Habitats or Organisms

22. The sustainable use of the marine environment for recreational navigation requires informed decisions to be made at every stage of the activity, this includes where to go and what to do when one gets there and how to act on the way. Since leisure boating is principally self-managed, the skipper or owner of the pleasure craft is ultimately responsible for ensuring that the vessel and those on board act responsibly towards the marine environment. Importantly to note that freedom of navigation does not include freedom of behaviour. Thus, some of the physical damage that can occur to marine habitats as a result of pleasure craft activities includes:

- disturbing habitats in the adjacent territorial fringe, including nesting sites because of flapping of sails or flags, engine noises, hull/wake wash due to excessive changes in course at high speed from close navigation to these sites;
- damage to coral reefs, sea-grass beds from groundings or keel impact;
- scouring of the seabed or destruction of underwater features of nature conservation due to anchor dragging in poor holding grounds or use of inadequately sized anchors;
- trampling of plants which may be important components of the coastal ecosystem and assist in stabilizing sand dunes and beaches.

Initiatives at the global level

23. As such, the Centre is not aware of initiatives taken at the global level for the prevention of pollution from non-commercial pleasure craft activities. Nevertheless, initiatives taken at the global level by the International Maritime Organization (IMO) for commercial shipping might have some relevance and can act as a point of departure when considering any action for the prevention of pollution from non-commercial pleasure craft, in particular for the environmental problems described above, since the elements of commonality exist between the sources of pollution from pleasure craft

and commercial ships. The salient initiatives taken for commercial shipping which could be relevant to pollution prevention from non-commercial pleasure craft are described below.

Garbage

24. Annex V of the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78) which entered into force on 31 December 1988, lays down conditions to prevent pollution by garbage from ships. An important feature of this Annex is the prohibition of the disposal of plastics into the sea and severe restrictions on the discharge of garbage into coastal areas and designated “**Special Areas**” (which include **the Baltic, the Mediterranean, the Black Sea, the Red Sea, the Gulfs area, the North Sea, the Antarctic area and the Wider Caribbean Region**).

Sewage

25. The discharge of sewage into the sea is covered by Annex IV of MARPOL 73/78. Under the provisions of Annex IV, the discharge of sewage into the sea is prohibited unless it has been:

- a) discharged through an approved system; or;
- b) stored in holding tanks and discharged in an approved manner; or
- c) processed in an approved treatment plant

26. While Annex IV has not yet entered into force, many port states have adopted local legislation to control the discharge of sewage from ships and entry into their ports is conditional on compliance with such legislation.

Oil

27. The main international instrument for the control of pollution from oil is Annex I of MARPOL 73/78. This contains measures to prohibit, prevent or reduce operational as well as accidental pollution. Like for garbage, “Special Areas” have been established in which intentional oil discharges are completely prohibited. The Mediterranean is one such area. Apart from adherence by ships to stricter standards of operational pollution control, it calls for a commitment by governments to provide adequate shore facilities for the reception of oily wastes.

28. To assist governments comply with the requirement for the provision of reception facilities in ports, IMO has published a Comprehensive Manual on Port Reception Facilities and one chapter is specifically dedicated to “Planning and executing reception facilities required for small ships”.

Exhaust Emissions

29. In September 1997, a Conference of Parties to the MARPOL Convention adopted a Protocol to the Convention in the form of a new Annex VI. The new Annex, which is not yet in force, covers emissions of NO_x, SO_x, ozone depleting substances (ODS_s), volatile organic compounds (VOC_s), shipboard incineration, and associated discharges of water.

30. With respect to SO_x emissions, a global cap of 4.5% sulphur content in bunker fuels is included in the Annex. More stringent controls are established for areas designated as “SO_x Emission Control Areas” where ships operating in the areas must not use bunker fuel with a sulphur content exceeding 1.5%. Alternatively, SO_x emissions can be controlled through the use of an exhaust gas cleaning system or any other technological method to limit SO_x emissions. At present, the North Sea and the Baltic Sea are designated as an SO_x Emission Control Areas. Annex VI makes it possible that additional areas may be agreed to.

31. IMO has adopted a set of mandatory technical requirements with the NO_x Technical Code for the regulation of NO_x emissions from marine diesel engines with a total power output of more than 150 kw installed on ships constructed on or after January 2000. The NO_x Technical Code

established mandatory procedures for the testing, survey and certification of marine diesel engines to ensure that they comply with the limits for NO_x emissions. In 1998, interim guidelines for the application of the Technical Code were approved by IMO.

32. It is thought that the stringent limits on exhaust emissions will dictate the use of catalysts where the NO_x is reduced to gaseous nitrogen and water. The emission of soot and hydrocarbons may also be reduced by selective catalytic reduction (SCR).

33. The issue of carbon dioxide emissions from ship, and how to control them, as requested by the Kyoto Protocol of 1997 to the United Nations Framework Convention for Climate Change, is being studied at IMO with a view to develop a carbon dioxide reduction strategy.

Anti-Fouling Paints

34. The pollution problems caused by tributyl tin anti-fouling paints were first raised at IMO's Marine Environment Protection Committee (MEPC) in 1988 when IMO was requested to consider the need for measures under relevant legal instruments to restrict the use of these compounds on sea-going vessels.

35. In 1990, at its 30th session, the MEPC adopted the Resolution MEPC 46 (30) on "*Measures to Control Adverse Impacts Associated with Use of Tributyl Tin Compounds in Anti-Fouling Paints*". This Resolution recommends Governments to adopt appropriate measures to eliminate the use of anti-fouling paints containing tributyl tin on non-aluminium hulled vessels of less than 25 metres in length and eliminate the use of anti-fouling paints with an average leaching rate of more than 4 micrograms of organotin per square centimetre per day. These recommendations were intended to be interim measures until IMO could consider a possible total prohibition of these compounds in anti-fouling paints for ships.

36. From 1990 onwards, IMO's successive meetings of the MEPC were presented with monitoring study results which reconfirmed the toxicity of these compounds to marine organisms. The Committee was also presented with information on existing alternative anti-fouling systems, including their effectiveness and the risk posed to the aquatic environment by these systems.

37. In 1999, at its 21st session, the Assembly adopted Resolution A.895(21), urging the MEPC to work towards the "*expeditious development of a global legally-binding instrument to address the harmful effects of anti-fouling systems use on ships*". A diplomatic conference is scheduled for 2001.

38. The Resolution adds that IMO "*agrees that the rules to be developed should ensure a global prohibition on the application of organotin compounds which act as biocides in anti-fouling systems on ships by 1 January 2003 and a complete prohibition on the presence of organotin compounds which act as biocides in anti-fouling systems on ships by 1 January 2008*".

39. However, there are still important issues which need to be resolved or clarified before a mandatory instrument to phase out organotin compounds which act as biocides in anti-fouling systems can be finalized.

Initiatives taken at the regional level

40. Initiatives have been taken at the regional level to address the prevention of pollution from pleasure craft. Noteworthy of mention is the "Code of Conduct for the Prevention of Pollution from Small Ships in Marinas and Anchorages in the Caribbean Region". This voluntary Code of Conduct was developed at the Conference on Prevention of Pollution from Small Ships held in the Port of Spain, Trinidad and Tobago (25 - 27 November 1997).

41. The objectives of the Conference were to highlight the problems of pollution from small ships and to establish regional guidelines to the prevention of pollution from small ships in marinas and anchorages, with a view of fostering the sustainable development of nautical tourism in the Caribbean region.

42. The outcomes of the Conference were the Code of Conduct and a Resolution. It was recommended to countries in the Caribbean region to take the necessary measures to implement the Code.

43. In the Mediterranean region, certain initiatives are also being undertaken to address this issue. The results of scientific investigations on the state of the marine environment in pleasure craft ports covering 120 French ports, 43 Italian ports and 2 Monegasque ports within the RAMOGE area are scheduled to be published in July 2000. Within its 2000 - 2001 workplan, the RAMOGE Commission has envisaged the preparation of a brochure targeting pleasure craft users. This brochure will contain a series of recommendations and boating tips to prevent pollution of the marine ecosystem. A guide for marina operators and those managing ports for pleasure craft is also planned for 2001. This publication will provide guidance on the different topics relevant to such marine interfaces, e.g. waste reception facilities.

44. Work on a draft regional convention dealing with pleasure craft navigation in the Mediterranean has also been initiated by *the Institut du Droit Economique de la Mer de Monaco (INDEMER)* and *the United Nations' Division of Ocean Affairs and the Law of the Sea (DOALOS)*. The draft legal instrument is wide in scope and deals with the registration of pleasure craft, liability insurance, training requirements and certification of those working on pleasure craft, the prevention of pollution and port State activities.

45. A meeting of experts from the Mediterranean countries and other interested parties took place to consider the draft legal text (13 - 15 January 2000). In view of the fact that certain important issues need still to be resolved or clarified, a second meeting of experts is planned for later this year.

46. Taking into consideration the above mentioned and to avoid a duplication of effort, a possible course of action to address the issue of prevention of pollution from non-commercial pleasure craft would be to develop uniform regional guidelines applicable to the Mediterranean setting. These will be based on a study which will encompass existing national and sub-regional requirements and other relevant global instruments. At the same time, REMPEC in co-ordination with the Co-ordinating Unit, would keep a watching brief on the development of the proposed draft Convention on Pleasure Navigation in the Mediterranean, judge accordingly whether the objectives of the Convention could be best served through the adoption of a protocol to the Barcelona Convention or otherwise and take the necessary action thereto.

47. Should the Meeting of Focal Points agree with this line of action, the future work programme outlined in REMPEC/WG.18/13 would need to be amended accordingly.

48. This document submitted by REMPEC should not be considered as an exhaustive one, and merely attempts to identify the problems associated with the pollution from non-commercial pleasure craft and some of the initiatives taken at the regional level to address the problems identified as well as a possible course of action. The objective of this document is to assist the Meeting in its work, by indicating the possible topics for discussion and by identifying areas where it might be considered that actions could be taken collectively and within a regional framework to apply an integrated and holistic approach to the issue of the prevention of pollution from non-commercial pleasure craft. **Contracting Parties are also being invited to submit contributions, preferably in writing, on the subject.**

Action requested of the Meeting of Focal Points

49. The Meeting is invited:

- a) to take note and comment on the information provided;
- b) to provide guidance and suggestions to the Director on the course of action that can be taken within a regional framework on the prevention of pollution from non-commercial pleasure craft activities.