PIANC
The World Association for Waterborne Navigation Infrastructure

Recreational Navigation Commission RecCom

ReCom WG 220

PLANNING, DESIGN AND OPERATIONAL GUIDELINES FOR PUMP-OUT SYSTEMS IN RECREATIONAL FACILITIES

TERMS OF REFERENCE

1. Historical background - Definition of the problem

Pump out systems are a natural development, or consequence of MARPOL, which came in force in 1983, as well as other water quality regulations (such as the US Clean Water Act). Based on those regulations, the fitting of installations to pump out sewage and bilge waters was adopted by the recreational marine industry, but only in the late '90s it was regulated more broadly by countries (Spain in 2003). RecCom WG 7 "Guidance on Marine Sanitation Pumpouts" was published in 1997, in the early days of the adoption of this technology.

In the last 20 years, pump- out system have suffered a drastic transformation due to the rapid evolution of their use and the industry. Drivers of change included the increased size of yachts, the experience with older installations, marina water quality studies, new materials used in equipment manufacturing, and changes in legislation and regulatory frameworks. User perceptions and marina operations are now also considered important: pump-out systems must consider not only their engineering design and technology, but user comfort, reliability, and the efficiency of the disposal method of the waste.

Today, pump out systems are not only fitted to comply with local regulations but are supported by government incentives and endorsed strongly by recreational boating industry best practice statements. It is logical that the recreational navigation industry promote water quality, as the main attractive of it are clean waters to navigate. However, best practices are not implemented uniformly around the world and many countries do not offer incentives for the installation of these systems.

2. Objectives

This report is intended to replace RecCom WG 7: Guidance on Marine Sanitation Pumpouts (1997).

The main objectives of this report include:

- to offer and updated classification and understanding of the different types of pump-out systems used by the recreational navigation and to discuss their characteristics and performance under different conditions.
- to develop recommendations for pump-out systems use in the design of facilities
- to offer analysis of regulatory frameworks, other insights and recommendations with the ultimate goal of achieving the smooth and widespread use of systems to prevent discharges of pollutants into sensitive water environments.

3. Earlier reports to be reviewed

Several PIANC Reports address this issue. But the role of this report is to include the details and comprehensive discussion of this topic:

- PIANC RecCom WG 7: Guidance on Marine Sanitation Pumpouts (1997)
- PIANC RecCom WG 134 Guidelines for design and operation of superyacht marinas.
- PIANC RecCom 149 Guidelines for marina design
- PIANC EnviCom WG 3 Glossary of selected environmental terms

4. Scope

The proposed scope of work is to:

- identify types of fluids that are collected by pump-out systems available in the market (sewage, bilge, etc)
- Identify different types of pump-out systems and the principle of operation (vacuum, pump-out, fixed, portable, cart, pump-out craft, truck)
- Identify pump-out systems layout (fixed pump at designated pier or pontoon, active area division, on-demand actuation, servo valves, sewage discharge to receiving facilities)
- Describe the characteristics of its components (pumps, piping, vents, receiving facilities)
- Identify the different characteristics of infrastructure where they can be installed (fixed piers, pontoons, service craft, carts, shore)

- Evaluate case studies of pump-out systems installations in marinas and recreational navigation infrastructure, including equipment performance and user adoption.
- Create guidelines and recommendations on recreational pump-out systems, and how to best include this equipment in the design of marinas and recreational navigation infrastructure of all types.
- Collate and evaluate information regarding regulatory frameworks and incentives for the installation of pump-out systems in different countries.

As it relates to environmental protection regulations, additional questions that this WG may address include:

- What type of statistics can pump-out collection data generate for use in infrastructure development and operation?
- What percentage of recreational craft is with sewage holding tanks, by size of vessel?
- For which types of boats sewage holding tank is recommended?
- Which are the countries with legislation and rules for pump-out systems?
- What are the regulatory mandates and the incentives offered?
- Should pump out systems be recommended to be mandatory?
- If pump-out systems were mandatory, what should be the requirements?

As it relates to design of various types of facilities, the report may include:

- Marinas and yacht harbours: It would be helpful to the design, construction and management of yacht harbours to understand the performance of various layouts, including usage of pump-out systems. This could also help assess where to lay piping, set points of discharge, locate pump-out main unit and connect to receiving facilities.
- Fuel stations and waiting pontoons (staging docks), when not a part of a marina or yacht harbour: Public services can fit this equipment to help environmental control by assuring that sewage and bilge waters are disposed of in an appropriated way.
- Independent pump-out services: mobile equipment can displace where the need arises and provide the service should the facility characteristics does not permit an installation.

5. Intended product

The working group report is intended to serve multiple purposes, including:

- Describe available technologies and equipment for pump-out systems.

- Provide planning and design recommendations to optimize the effectiveness and efficiency of pump-out systems in recreational navigation infrastructure.
- Offer models of regulation and incentives related to pump-out installations

6. Working Group Membership

- Marina designers, engineers and consultants (including professionals that specify equipment)
- Designers, manufacturers and agents of pump-out equipment.
- Boat builders, designers and boat equipment professionals
- Environmental regulatory agencies, environmental scientists, consultants, etc.
- Officials involved in environmental legislation and regulation of the recreational navigation infrastructure and its operations.
- Marina operators and managers, and organizations that represent them
- Marina owners and developers (private and public)

It is recommended that the Working Group invite researchers and equipment designers as members, to benefit from available know-how on pump-out systems to understand their types, organization and infrastructure needs.

7. Target Audience

- Marina designers and engineers
- Marina owners, developers, and operators
- Regulatory agencies
- Environmental practitioners

8. Relevance

8.1. Relevance to countries in transition

The report will provide technical information and best practices to promote sustainable development of recreational navigation. It is intended to result in net positive environmental impact where discharges presently occur.

This report can be used by countries in transition as a guidance to develop environmental legislation and incentives programs.

8.2. Climate Change and Adaptation Implications

Data analyses based on the expected guidelines may be used to monitor navigation usage changes due to the changing ways people use their recreational boats and modern changes in boat design or long-term climate change patterns.

8.3. Relevance to Implementation of WwN Philosophy

Pump-out systems are a basic element of recreational navigation infrastructure. While not critical for the philosophy of planning and design, it is considered a minimum requirement.

Better guidelines for planning and design that encourage implementation of the system and widespread operation are compatible with the goals of WwN.

8.4. Relevance to UN Sustainable Development Goals

This report is intended to directly contribute to the following SDG's:

- Goal 6: Ensure availability and sustainable management of water and sanitation for all.
- Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development

8.5. Relevance to UN Small Island Development States (SIDS)

Most SIDS are threatened by water pollution, coral reef destruction and marine environmental degradation. This report is intended to contribute to reduce present negative environmental impacts and allow the growth of recreational navigation that is compatible with ecosystem protection.

9. References

Relevant reference documents that should be reviewed include:

Marine Pumpouts Rhode Island USA department of environmental matters http://www.dem.ri.gov/programs/water/shellfish/marine-pumpouts.php

The Green Blue, UK The Green Guide to Pump Out Systems https://www.thegreenblue.org.uk/

BoatUS Foundation: https://www.boatus.org/clean-boating/sewage/pumpout/

SOBA (2004). "Performance Testing of Marine-Use Waste Pump-out Stations" States Organization for Boating Access

http://www.florida-pumpout.com/

https://www.leesan.com/shop/pump-out-equipment/dual-pump-out-stations