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Water Aerodromes – Areas of Collaboration Between ICAO and IALA

1 SUMMARY

Water aerodromes are at the nexus between air and marine transportation. Considering that the International Civil Aviation Organization (ICAO) is currently working on establishing guidelines on water aerodrome design and operations and will be developing *Standards and Recommended Practices* (SARPs) in the future, this paper highlights the recent works of ICAO's Water Aerodrome Working Group (WAWG) and provides specific recommendations of interest to IALA.

1.1 Purpose of the document

The purpose of this document is to inform IALA's Aids to Navigation Requirements and Management (ARM) Committee of recommendations put forward by ICAO's Water Aerodrome Working Group (WAWG) in its draft ICAO Circular called *Guidance Material on Water Aerodromes* that could be of interest to IALA and the committee.

This paper then (1) recommends the committee to explore the establishment of a maritime standard that would require the usage of an alerting system to inform vessels of arriving or departing seaplane operations in the vicinity of a water aerodrome (Part V of the draft ICAO Circular), (2) requests the committee to carefully review recommendations around buoys and marking on the water under Part V and VI of the Circular, and (3) recommends that IALA, in collaboration with the International Hydrographic Organization (IHO), develop standards for the depiction of water aerodrome in maritime charts.

2 BACKGROUND

During the 40th Assembly of the International Civil Aviation Organization (ICAO) in 2019, Canada, along with Indonesia, presented a resolution to Member States asking the ICAO Council to "develop specific *Standards and Recommended Practices* in the appropriate Annexes to the *Convention on International Aviation* in order to address the design, certification, management, safety and reporting requirements for water aerodromes operations". This resolution was unanimously adopted by ICAO Member States.

¹ Input document number, to be assigned by the Committee Secretary

² Leave open if uncertain

Following the adoption of the resolution, the ICAO Secretariat established the WAWG in 2021 to initiate preliminary works on the development of ICAO Standards as proposed in the ICAO Resolution. The working group began its works in January 2022 and is currently composed of more than ten ICAO Member States and members of the air industry.

Since the launch of its works, The WAWG have since (1) reviewed national legislations, regulations and guidance material with respect to water aerodrome design and operations, (2) completed a gap analysis of existing international guidelines respective of water aerodromes, and (3) drafted an ICAO Circular on *Guidance Material for the Development of Water Aerodromes*. The development of this Circular is of great importance as the working group intends to incorporate the material contained in the Circular into ICAO SARPs in the future. The work has been progressing rapidly lately, and the working group hopes to get the ICAO Circular published in Q2/2024.

Considering that water aerodromes are at the nexus of air and maritime transport, coordination between air and maritime agencies is crucial. This is why the WAWG is coordinating its works with other relevant ICAO working groups and has reached out to international maritime organizations (International Maritime Organization (IMO), IALA) for support, and their respective secretariats have agreed to support the WAWG in its works.

3 DISCUSSION

The draft ICAO Circular on *Guidance Material for the Development of Water Aerodromes* was developed by aerodrome experts and contains recommendations that are of interest for the maritime industry. The recommendations below could be of interest to IALA, and the Aids to navigation Requirements and Management Committee:

- 1- **The establishment of an alerting system to alert vessels of seaplane operations in the vicinity of a water aerodrome to limit of collision in busy areas on the water:** one area of interest to our working group is the establishment a standard that could be used to inform both mariners and aviators in and around an operating water airport while seaplanes are landing and taking off, as these are critical times for both air pilots and mariners as it provides the highest potential risk of collision for both groups.

Section 5.5.2 of the draft ICAO Circular recommends the use of stroboscopic lights to alert mariners when seaplane operations (take-off or landing) on a water runway are about to commence:

5.5.2 **Strobe lights:** When required, strobe lights should be provided to alert marine and air traffic in the area to indicate seaplane operations underway or about to commence.

Where installed, the strobe lights should be:

- a) white, rate flashing; and
- b) located in an area that is easily and constantly seen by both marine and air traffic.

Note. — Activation of strobe lights by radio has proven to be an efficient method.

This stroboscopic lighting system has been developed and implemented at the Victoria Harbour water airport (ICAO: CYWH) located at the port of Victoria in British Columbia, Canada (see chart in Annex A for more information). This water airport is the busiest water aerodrome in Canada in terms of daily seaplane movements and also has a great number of marine vessel movements. What is unique to Victoria however is the cooperation between aviation and marine entities, as they have developed this system that works both for mariners and aviators to uphold the highest level of safety possible.

- 2- Ensure a usage of buoys and markings at water aerodromes that are compatible with maritime standards:** Parts V and VI of the draft ICAO Circular contains recommendations of the usage of buoys and for the marking of objects in and out of the water.

A common understanding of these buoys by airmen and mariners is required in order to be efficient and to enhance safety, and so the harmonization of shapes and colours is required. The IALA ARM working group is invited to review the recommendations contained in these sections of the Circular, provide comments and indicate and if additional specific recommendations for buoys/markings requirements around water aerodromes are required.

5.2.2 Marker Buoys

Characteristic

5.2.2.1 Marker buoys should be in accordance with IMO standards and be visible to aircraft:

- a) manoeuvring on the surface of water; and
- b) 300 m (1000 ft.) above the water runway.

Water Runway markers

5.2.2.2 Except as specified in 5.2.2.3 at water aerodromes where there is no conflict with marine traffic or procedures have been put in place to mitigate traffic conflict marine regulations:

- a) Each threshold should be marked with fixed or floating markers.
- b) The markers should be visible from a distance greater than 2 nautical miles;
- c) Each marker should be in accordance with IMO standards; and
- d) where threshold is displaced permanently or temporarily, the floating or fixed markers should be provided on the displaced location.

5.2.2.3 Where it is impracticable to mark the water runway as specified in 5.2.2.2, guidance such as geographical points and/or other visual references should be provided to designate the take-off and landing area.

5.3 Hazardous Areas Markers

5.3.1 Where shoals or other hazards could endanger a seaplane, marker buoys should be installed to clearly indicate the hazardous area.

5.3.2 Marker buoys for delineating hazardous area should be distinctly marked from water runway markers in colour and shapes and be in accordance with IMO standards.

[...]

6.1 Marking of Objects

6.1.1 A fixed obstacle that extends above a take-off climb, approach or transitional surface should be marked except if the object is conspicuous by its shape, size or colour.

6.1.2 When an inner horizontal surface is provided, and obstacles extend over the surface, a safety risk analysis should be made to determine what obstacles should be marked.

6.1.3 Except as covered under IMO standards, objects should be marked in accordance with 6.2.

6.2 Marking of Objects not Covered under IMO Standards

6.2.1 Except as specified in 6.1.1 all fixed objects should be marked in a conspicuous colour.

6.2.2 Where it is not possible to colour the objects, markers or flags should be displayed on or above the objects.

6.2.3 **Use of colours on markers and markings:** Elongated objects should be marked with alternating contrasting bands, visible from a range of 300 m (1000 ft), preferably red and white or orange and white, with the darkest colours with the bands on the extremities of the object should be of the darker colour.

6.2.4 Objects not elongated should be marked with a chequered pattern, visible from a range of 300 m (1000 ft) preferably red and white or orange and white, the corners being of the darker colour.

6.2.5 **Use of markers:** Markers displayed on or adjacent to objects should be:

a) located in conspicuous positions so as to retain the general definition of the object; and

b) recognizable in clear weather from a distance of:

(i) 1000 m for an object to be viewed from the air; and

(ii) 300 m for an object to be viewed from the ground in all directions in which a seaplane is likely to approach the object; and

c) compatible with IMO standards, when applicable.

6.2.6 The shape of the markers should be:

a) distinctive to the extent necessary to ensure that they are not mistaken for markers employed to convey other information; and

b) such that the hazard presented by the object they mark is not increased.

3. Inclusion of water aerodrome information in maritime charts: In order to limit the risk of collision, it is important for vessels navigating near water aerodromes to be fully aware of seaplane operations nearby. That is why it is recommended that IALA and the International Hydrographic Organization (IHO) consider the possibility of establishing standards on the depiction of water aerodromes on maritime charts in areas where significant aerial and maritime traffic is expected.

4 REFERENCES

- [1] *Global Standards Related to the Design, Certification and Operations of Water Aerodromes*, ICAO working paper 94 presented at the 40th Assembly,
https://www.icao.int/Meetings/a40/Documents/WP/wp_094_en.pdf.

[2] *Guidance Material for the Development of Water Aerodromes* (DRAFT from 24 June 2023)

5 ACTION REQUESTED OF THE COMMITTEE

The Committee is requested to:

- 1 Review the draft ICAO Circular - *Guidance to Water Aerodromes Design and Operations* and provide comments to the WAWG.
- 2 Explore the possibility of establishing an alerting system to alert vessels of seaplane operations in the vicinity of a water aerodrome.
- 3 Consider if the usage of buoys and markers in water aerodromes as per the draft ICAO Circular are compatible with existing maritime standards, and if additional specific recommendations for buoys/markings requirements around water aerodromes are required.
- 4 Explore the possibility of working with IHO in establishing standards on the depiction of water aerodromes on maritime charts in areas where significant aerial and maritime traffic is expected.

APPENDIX 1 PORT OF VICTORIA TRAFFIC SCHEME

