International Civil Aviation Organization

APAC Water Aerodrome Working Group Meeting

Male' Maldives, 23-25 February 2015

Agenda Item 3: Review Progress and Draft Model Regulation for Water Aerodromes

DRAFT MODEL REGULATIONS FOR WATER AERODROMES

(Presented by Maldives)

SUMMARY

This Working Paper presents for review and discussion by the Small Working Group on the draft model regulations developed by Maldives in consultation with experts from Indonesia, New Zealand, Sri Lanka and USA and the best practices.

Action by the Working Group is at Para 3 to this Working Paper.

1. INTRODUCTION

1.1 APANPIRG/24 recognized the importance of developing seaplane bases (Water Aerodromes) which could be the best mode of transportation in geographical isolation in addition to providing recreational access and evacuation in emergencies. In this regard the AOPWG/2 Meeting noted the need for a model regulation on water aerodromes considering the growth in sea plane operations in APAC Region and proposed the establishment of Water Aerodromes Task Force to develop the model regulations for use as a reference document and with the Terms of Reference as at Attachment A to this Working Paper.

1.2 The ATM/SG/2 agreed to the following Decision as a result of input from the AOP/WG:

Decision ATM/SG/2-7: Establishment of Water Aerodromes Small Working Group

That, the Water Aerodromes Small Working Group be established and comprising of experts from Indonesia, Maldives, New Zealand, Sri Lanka, and USA in order to develop a model regulation for water aerodromes for use as a reference document in the Asia/Pacific Region.

2. DISCUSSION

2.1 The experts from Indonesia, Sri Lanka and USA reviewed and offered comments on the draft version of the model regulation circulated by Maldives in September and November 2014. The draft Model regulation on water aerodromes (Version 3) is placed at Attachment for review and discussion by the Group.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) Note the contents of this Working Paper;

b) Deliberate on the draft model regulations presented in this Working Paper and provide suggestions/comments for improvement.

APAC Water Aerodrome Working Group (WAWG) e-Meeting #03

Meeting Start Date:	21 January 2015
Meeting End Date:	21 February 2015
Commenting Period:	21th Jan – 21th Feb 2015

Meeting Attendees:

1. Ms. Wahyu D. Agustini - Indonesia
2. Mr. Alexander - Indonesia
3. Ms. Fathimath Ramiza - Maldives
4. Ms. Aminath Shiznee - Maldives
8. Mr. Nick Jackson - New Zealand
9. Mr. Michael A.P. Meyers – USA
10. Mr. Atula Jayawickrama – Srilanka
11. Mr. Natarajan Sekhar – ICAO APAC

Agenda

01. Feedback from states to the Draft Water Aerodrome Regulations

02. Any other items.

03. Date of Next Meeting.

Attachment 01 – Draft Water Aerodrome Regulations Revision #1

01. Feedback from states to the Draft Water Aerodrome Regulations

States to review the draft regulations in Attachment 01 and provide their comments before the end of the commenting period.

2. Any other items

States to propose.

3. Date of Next Meeting: *TBA*

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DRAFT WATER AERODROMES REGULATION REVISION

1. General

1.1 Introduction

This Draft Regulation provides guidance to assist operators in planning, designing and constructing water aerodromes and associated facilities. However, not all items addressed in this publication would be applicable at every aerodrome. Aerodrome operators should examine each item carefully by considering the size, complexity and scope of operations at the aerodrome to determine what applies.

ICAO Annex 14 does not differentiate between land and water as a surface from which aircraft can operate; Annex 14 defines that an aerodrome can be on land or water.

Operations on water differ significantly from those conducted on land, and the licensing criteria for land aerodromes are inappropriate in some areas. Although based on the existing land aerodrome criteria, the different operational and safety risks when operating onto and from water have been recognized and addressed.

The process of granting a licence for a water aerodrome is no different from that of a land aerodrome, and each application would be assessed on the ability to meet the relevant requirements. The licensing criteria focus on those licensing factors where water aerodromes differ from land aerodromes. These factors primarily include the physical characteristics of the operating environment, mooring procedures, and rescue and firefighting services; however, one fundamental licensing criterion, that requires the licence holder to establish and maintain an appropriate Safety Management System (SMS), remains the same.

The water aerodrome licensing criteria are designed to cater for day, Visual Flight Rules (VFR) operations only; they do not cater for night, Instrument Meteorological Conditions (IMC).

In addition to aviation legislation, a seaplane in contact with the water is subject to maritime legislation; including the International Regulations for the Prevention of Collision at sea and local byelaws that are not addressed in this document. Where appropriate, licence holders should consult with those bodies that have a regulatory or statutory interest in the use of, or in the operation of, an aerodrome within the licensed area.

1.2 DEFINITIONS

When the following terms are used in this Circular they have the following meanings:

'Licensee' The license holder of the water aerodrome.

'Aeroplane' A power-driven heavier than air aircraft deriving its lift in flight chiefly from aerodynamic reactions on surfaces which remain fixed under given conditions of flight.

'Dock' A floating platform extending from the shore, on water and supported by pillars or pontoons to hold in position, intended to alongside seaplanes for the purposes of loading or unloading passengers, cargo, fuelling or parking.

'Floating Platform An anchored, defined platform inside protected waters licensed for the purpose of embarkation and disembarkation of passengers or cargo by aircraft. (These could also mean attached jetties).

'Water Aerodrome/: (Sometimes referred as sea plane base) A defined area on water (including any buildings installations and equipments) intended to be used either wholly or in part for the arrival, departure and movement of aircraft.

'Water Runway/Sea Lane' - A defined rectangular area on a water aerodrome, intended for the landing and take-off run of aircraft along its length.

'Response Time' is the time between the initial call to the Rescue and Fire Fighting Services (RFFS) and the first effective intervention at the accident site by a rescue and firefighting vessel.

1.3. Units of Measurement

1.3.1 Except as specified, units of measurement shall be as follows;

a) Elevations to the nearest meter;
b) Linear dimensions to the nearest one-half meter;
c) Geographic coordinates in latitude and longitude to the nearest second;
d) Geographic co-ordinates measured in accordance with WGS 84 reference datum;
e) Bearings given to the nearest degree;
f) Water depth to the nearest meter to the nearest decimal; and
g) Range of tides or water levels to the nearest meter to the nearest decimal.

1.4 Requirement to Hold a Water Aerodrome licence

1.4.1 No person shall operate a water aerodrome unless that place has been licenced under this regulation. Or the use of the place is authorized by the Regulatory Authority.

1.5 Application for a Water Aerodrome License

1.5.1 **Application -** Applications for Water Aerodromes shall be forwarded to the Regulatory Authority. Upon making an application for the grant of a licence, the applicant shall pay applicable administrative charges.

1.5.2 **Water aerodrome operations Manual -** As part of the licensing process, the applicant shall prepare and submit a Water Aerodrome Operations Manual (WAOM) which will include all pertinent information on the aerodrome site, facilities, services, equipment, details of all known obstruction to air navigation, operating procedures, organization and management including a safety management system for acceptance prior to granting the water aerodrome licence.

1.5.3 **Onsite Inspection -** The applicant shall arrange an onsite inspection of the new proposed site to be used as a water aerodrome by surveyors/ inspectors from the revenant agencies and inspectors appointed by the Regulatory Authority.

1.5.5 **Ad-hoc and Unlicenced sites** - If there is a requirement for charter or ad-hoc operations to an unlicensed site, then the area of operation should be risk assessed and a copy of the risk assessment report with the ad-hoc landing request shall be submitted to the Regulatory Authority.

1.6 Cancellation of Water Aerodrome License

1.6.1 Regulatory Authority may cancel or suspend a water aerodrome licence when water aerodrome is no longer in operation or when the water aerodrome no longer meets the licensing requirements.

1.6.2 The operator may request cancellation of the water aerodrome license where the water aerodrome is closed or no longer meets the applicability criteria.

1.6.3 Where the water aerodrome license has been cancelled or suspended, the operator shall return the water aerodrome license to the Regulatory Authority within ten (10) working days from the reception of the notice of cancellation or suspension.

1.6.4 Where the water aerodrome license has been cancelled the operator shall remove all facilities and equipment installed for the purpose of the water aerodrome operation as soon as possible but not later than ninety (90) days from the reception of the notice of cancellation.

2 - SITE SELECTION

Site selection criteria is based on the physical characteristics of seaplanes, their unique operating characteristics, and the interplay of wind and water current and water depth. Designers/operators will observe because of these differences this document recommends larger dimensional clearances and separations for seaplane base and their facilities as compared to land airports.

2.1 PHYSICAL CHARACTERISTICS OF THE WATER AERODROME

Note : The Particulars of Aerodrome Dimensions and related Information shall be included in the Water Aerodrome Operations Manual

Physical Characteristics

2.1.1 Reference Point

The water aerodrome reference point (WRP) should be located at the planned geometric centre of the maneuvering area, or of the main one if more than one is provided.

2.1.2 An Aerodrome Reference Elevation(ARE) should be determined at the ARP. This elevation should be determined from the Chart Height, or the lowest recorded water level, converted to an elevation in meters above Means Sea Level.

2.2 Movement Area/ maneuvering area or water operating area (for discussion)

2.2.1 License holders shall determine the area of any land and water on which seaplane operations may take place. It is this area that shall be the movement area.

2.2.2 One or more maneuvering area(s) should be established within the movement area of a licensed aerodrome.

2.2.3 Operational procedures should be developed for safe seaplane taxiing and mooring in the proximity of other seaplanes and obstacles that minimize the risk of damage to occupied or unoccupied seaplanes, particularly where this might result from variations in wind direction; water current, depth and ebb; and flow of tide.

2.2.4 As far as practicable, all reasonable effort should be made to provide a movement area that is free from debris likely to cause damage to a seaplane. In particular, procedures should be established for the regular inspection of the maneuvering area(s) to remove foreign Object Debris (FOD).

2.3 Maneuvering Area (for discussion)

2.3.1 The maneuvering area(s) should be square or rectangular in shape, and should encompass all parts of the water surface intended for the taking off and landing of seaplanes including the strips.

2.3.2 Whatever shapes the maneuvering area is, the take-off run available should be adequate to meet the operational requirements of the seaplanes for which the water runway is intended and should be not less than the longest length determined by applying the corrections for local conditions to the operations and performance characteristics of the relevant seaplanes.

2.3.3 The following water aerodrome dimensions shall be available for the maneuvering area (for discussion)

Maneuvering **Area**	**Water Runway** Width	60 m
	Strip Width	30 m
	Strip Width(including Runway)	120 m
	Length take-off and landing area	800 m

a) the width of the runway shall be a minimum 60m
b) the width of the strip shall be a minimum of 30m each side of the runway;
c) the width of the take-off and landing area shall not be less than 120m; and
d) length of the primary take-off and landing area(maneuvering area) shall not be less than 800m;
e) the depth of the water in the take-off and landing area shall not be less than 1.8m unless the aerodrome is restricted to aircraft requiring less than 1.8m in which case the depth of the water shall be based on the requirements of that aircraft.

2.3.4 Where parallel water runways are intended for simultaneous use, the minimum distance between their centre lines shall be in accordance with ICAO Annex 14 requirements.

2.3 Taxiways

2.3.5 Taxiways should be provided where required, to permit safe and expeditious surface movement of aircraft.

2.3.6 Where taxiways are provided, the width of taxiways should be not less than 45 m.

2.3.7 depth of taxiways should be not less than 1.2 m (4 ft.)

2.4 TAXI CHANNELS

A taxi channel is a basic, minimum facility of a seaplane aerodrome that allows adequate separation for water taxing as shown in figure 1-1. The taxi channel provides direct access from the sea lane to the anchorage area and onshore facilities. When the water operating area permits, the taxi channel should be oriented so that the approach to shoreline and onshore facilities, such as the anchorage area and ramp, pier, will be into the prevailing wind or current. The taxi channel for small seaplanes should have a minimum width of 125 feet (38 m), although a width of 150 feet (45 m) or more is desirable. The stronger the wind and current, the more room it takes to make a water turn. Hence, a minimum clearance of 50 feet (15 m) should be provided between the side of any taxi channel and the nearest object. Although wingspans vary, the minimum wingtip-to- wingtip separation for passing seaplanes using dual directional taxi channels should offer at least 50 feet.

2.5 TURNING BASINS

Turning basins as shown in figure 1-1 are extra wide water maneuvering areas to facilitate water taxiing, turn maneuvers, and to accommodate periods of changing wind and current conditions.

2.6 Location

A turning basin should be provided to offer seaplane pilots an extra wide water taxi maneuvering area to enter/exit an anchorage area and facilities located on the shoreline, for example, ramps, piers, hoisting equipment. For narrower, restricted sea lanes under 200 feet (60 m) in width, it is highly recommended that both ends of such restricted sea lanes have turning basins of a minimum radius of 200 feet (60 m).

2.7 Clearance

The stronger the wind and current, the more room it takes to make a water turn. Hence under these conditions, a minimum clearance of 50 feet (15 m) should be provided between the side of the turning basin and the nearest object.

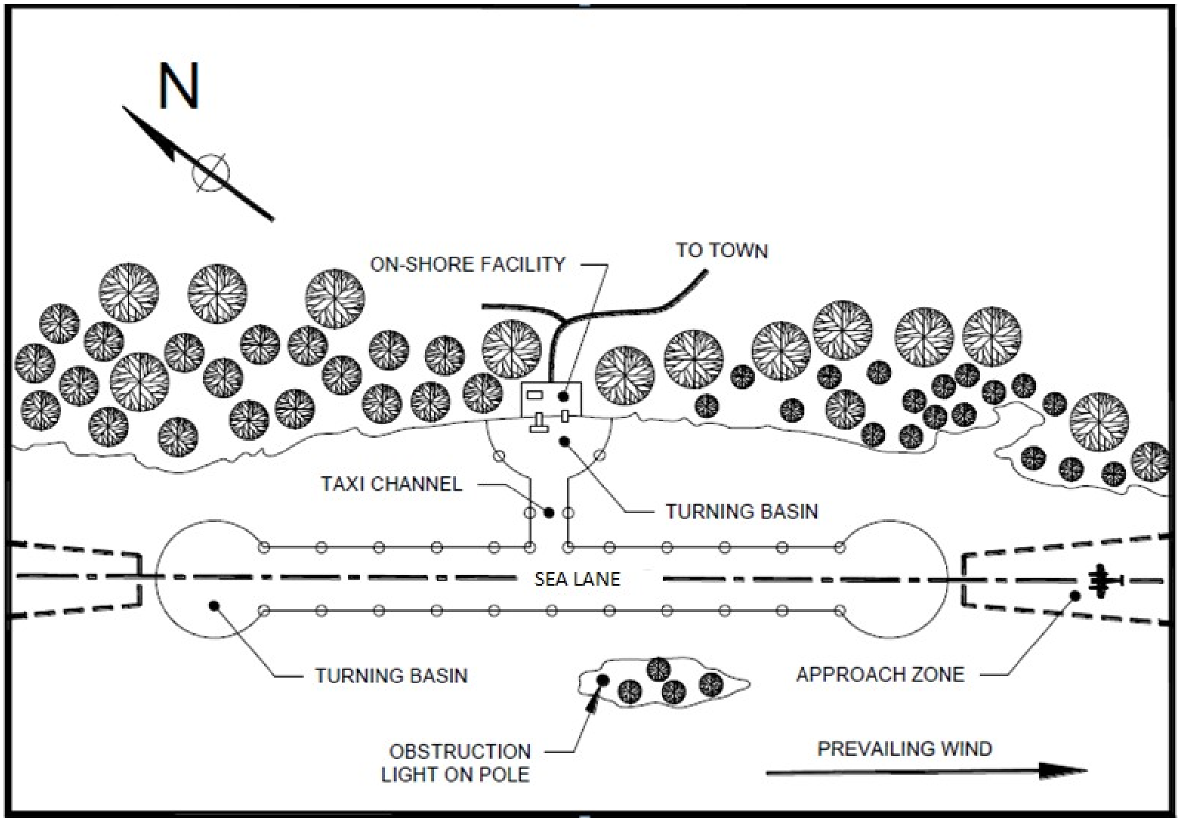


Figure 1-1. Locations of restricted sea lane, turning basins, and taxi channel

2.7 ANCHORAGE AREAS

Some basic seaplane base has a dedicated anchorage area along the shoreline for securing seaplanes. Anchoring as shown in figure 1-2 is an easy, inexpensive way to secure a seaplane near the shoreline. Center-to-center spacing of anchors, where small twin-float seaplanes are to be moored, should not be less than twice the length of the longest anchor line plus 125 feet to allow for weathervaning, fuselage and wingspan parameters. For larger types of seaplanes, including flying boats and amphibians this spacing should be increased by an additional 100 feet. In comparison, figures 1-3 and 1-4 show an anchoring area with permanently anchored mooring buoys. Although a seaplane base may offer tie down capabilities, increased seasonal demand could necessitate supplemental anchorage areas. In all case, it is recommended that the anchorage area be within sight and calling distance from the shoreline or from floating docks, ramps, etc., if possible.

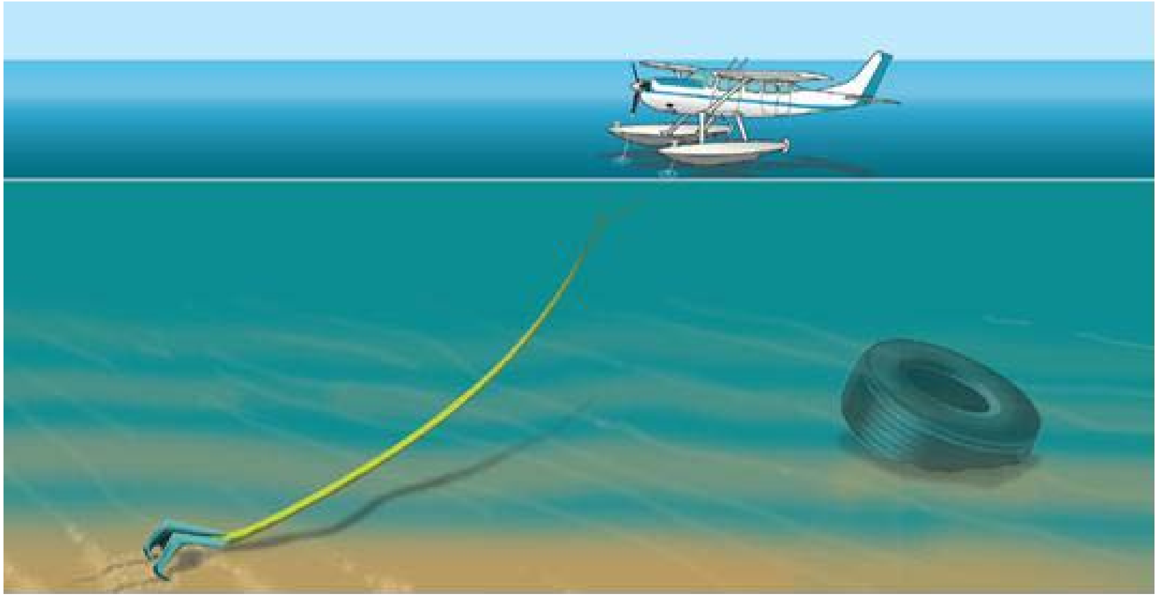


Figure 1-2. Anchoring (single anchor line)

Figure 1-3. Example of a mooring buoy anchorage area (dual anchor line plus bridle)

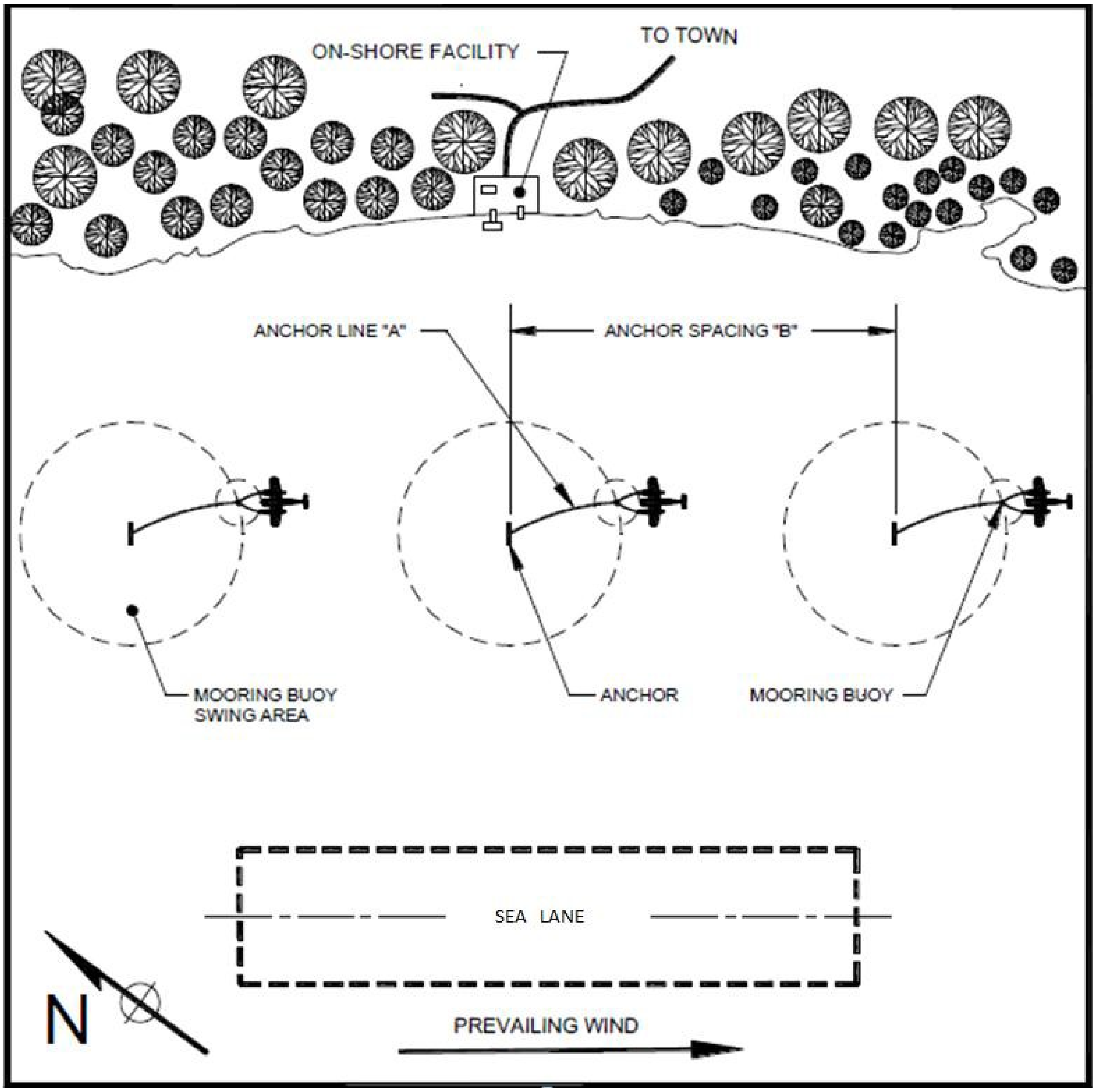


Figure 1-4. Example of an anchorage area with permanent mooring buoys swing areas. See subparagraph 3-4 (b) and (c) for dimensional A and B parameters

2.8 Site Considerations

The anchorage area selected should be out of the way of moving vessels and in water deep enough that the seaplane will not be left aground during low tide. With these factors evaluated, the overall size of the anchorage area can then be determined by the number and size of seaplanes and the following conditions. First, the site allows enough room so that the seaplane can swing around the anchor without striking nearby obstacles. Second, it permits unrestricted maneuvering of the seaplanes when approaching the anchorage area. It is desirable that anchorage areas provide maximum protection possible from high winds and rough water. If this is not possible, a shear boom should be considered if seaplanes are to be moored in an area where the current is strong. A shear boom consists of a series of logs tied together at their ends and anchored. Its functions are to create an area of calm water on the downstream side, as well as to deflect debris away from the seaplane floats.

2.9 Individual Anchoring – Requirements

The space required for each seaplane is determined by seaplane's length and wing span, the length of the anchor line and, if used, the mooring bridle, under the lowest water level condition experienced in the anchorage area. The length of the anchor line "A" as shown in figure 1-4 should be six times the maximum depth at mean high water. Where seaplanes weathervaning swing is limited, the length of anchor line may be shortened to not less than three times the water depth, provided the normal anchor weight or holding capacity is doubled thereby avoiding dragging of the anchor.

2.10 Multiple Mooring - Space Requirements

Referring to figure 1-4, center-to-center anchor spacing, "B", for small twin-float seaplane mooring, should not be less than twice the length of the longest anchor line plus 125 feet (38 m). For larger seaplanes, including flying boats and amphibians, an additional 100 feet (30 m) should be added to this spacing. Anchor capacity and spacing may be influenced by bottom conditions (see subparagraph 3.4(d)).

2.11 Anchor Considerations

Appropriate anchorage selection (weight and shape) depends on intended use and the holding characteristics of the bottom. The length of the anchor line should be about seven times the depth of the water. See figure 1-2 for an example.

2.12 Bottom Conditions.

Common bottom conditions such as sand, clay, or similar materials require anchors that will "dig in" to hold moored seaplanes within designated areas. For bottom conditions having deep, soft, mud and silt conditions, pilots have used mushroom- type or large base-area anchors which will not sink excessively into the sludge. In comparison, for shale, smooth rock or other hard bottoms, a much heavier anchor is required because the weight of the anchor is the principal holding factor. Pilots have used 5 to 10 pound (2.5 to 4.5 kg) cast-iron or steel boat anchors under normal conditions for temporary or emergency mooring. These types of anchors have been used to secure temporary night-lighting buoys or floating lighting devices. To evaluate the holding capability after dropping the anchor, first align the seaplane headed into the wind, and then allow the seaplane to drift backward to set the anchor.

At that point, watch two fixed points somewhere to the side of the seaplane, one farther away than the other, that are aligned with each other, such as a tree on the shore and a mountain in the distance. If they do not remain aligned, it means that the seaplane is drifting and dragging its anchor along the bottom. If anchoring the seaplane overnight or for longer periods of time, use a heavier anchor and be sure to comply with maritime regulations for showing an anchor light or daytime visual signals when required.

2.13 Weight.

When computing the weight of permanent mooring or lighting-fixture anchors, the reduction in weight due to their submersion must be considered. The apparent weight reduction is equal to the weight of the water displaced by the anchor. Permanent markers or light-buoy anchors, other than typical boat anchors, should not weigh less than 250 pounds (100 kg) when submerged. Small aircraft mooring buoy anchors should not weigh less than 600 pounds (275 kg) when submerged and should not roll on the bottom. An excellent mooring anchor for seaplanes of gross weights up to 15,000 pounds (6 800 kg) can be made from two large steel drums or wooden barrels filled with concrete and connected with heavy 2 to 3 inch (5 to 7.5 cm) diameter iron pipe. This anchor has a gross weight of approximately 2,200 pounds (1 000 kg) and a submerged weight of about 1,320 pounds (600 kg). A single-barrel anchor constructed as above will be satisfactory for anchoring small seaplanes. Three drums may be needed for larger, heavier aircraft. Filled concrete blocks tied together with reinforcing rods will also make a satisfactory anchor.

2.14 Anchor Lines

In addition to anchor lines being of required length, as previously covered in subparagraphs 3.4 (b) and (c), they must have certain other characteristics if they are to prove satisfactory.

2.15 Strength.

The strength of an anchor line is based on the safe working load being equal to or greater than the gross weight of the anchor. Under most wind and water conditions, a 0.25 inch (6.5 mm) wire rope or chain will be strong enough for mooring aircraft up to 3,000 pounds (1 360 kg) gross weight, and a 0.50 inch (12.5 mm) anchor chain or wire rope will be satisfactory for mooring aircraft up to 15,000 pounds (6 800 kg) gross weight.

2.16 Effects of Water.

Mooring lines of the size indicated will remain serviceable for several years in fresh water. In salt or brackish waters, due to the rapid deterioration of metals, the minimum size should be increased by 1/8-inch (3 mm) unless stainless steel rope is used. A practical application is to attach the anchor line to the end of a heavy chain. This arrangement reduces the strain and shock on the aircraft when riding in rough water or heavy swells. Refer to engineering handbooks for weight and strength characteristics of wire rope and chain for determining anchor line sizes.

2.17 Metal Fittings.

Copper or bronze fittings should not be used in direct contact with steel fittings or lines unless they are insulated. Without such proper insulation, electrolysis takes place leading to metal corrosion. Galvanized screw or pin shackles are recommended at the buoy, thus allowing the buoy to rotate on the anchor line. All hardware should be hot-dipped galvanized. When wire rope is used, the ends should be doubled back over a thimble and made fast with rope clips or clamps. It is customary to use three clamps per connection.

2.18 Mooring Buoys

Mooring a seaplane to a buoy eliminates the problem of the anchor dragging. Mooring buoys are floating markers held in place with cables or chains to the bottom. Mooring buoys must be chosen that will not damage floats or hulls if they are inadvertently struck during water operations. The mooring site must accommodate buoy swings and seaplane drifting, swinging on its mooring bridle (line connecting the seaplane to the mooring buoy) in as shown in figure 3-3. The desirable approach to a mooring location is at a very low speed and straight into the wind. Once the site is determined, the permanent mooring installation will consists of a heavy weight on the bottom connected by a chain or cable to a floating mooring buoy with provisions for securing mooring lines. A mooring buoy must first support the weight of the anchor line or wire rope and secondly, flag standards, fittings, and lighting accessories when such additional equipment is used.

CHAPTER 3. SHORELINE FACILITIES

3.1 INTRODUCTION

Shore-line facilities are partly on land and in the water. These installations perform two general functions: (1) enable servicing, loading and unloading, handling and tying-up facilities for seaplanes without removing them from the water, and (2) provide hauling-out facilities for removing seaplanes from the water. Facilities along the shoreline, which vary according to need and topography, range from a simple wood-plank ramps and floating deck to the more elaborate piers, fixed docks, and barges, and possibly marine rail (topography). The types, size, and arrangement of these various facilities will be determined by the water and wind conditions, the topography of the land adjacent to the shoreline, the configuration and conditions of the bottom of the water operating area, and the number and type of seaplanes and amphibian airplanes to be moored, docked, or removed from the water.

3.2 RAMPS

A ramp as shown in figures 2-1 and 2-2 is a sloping platform extending well under the surface of the water that vary widely in size, shape, and construction materials, e.g. from rough logs to heavy-duty wood decks, to less desirable steel, or concrete structures. The simplest ramp consists of a wood plank platform approximately 15 by 20 feet (5 m by 6 m) laid on a sloping shore, with up to half of its length in the water to permit small seaplanes to taxi up to, onto, and out of the water. If the ramp is wood, the seaplane can be slid up or down on the keels of the seaplane's floats, provided the surface of the ramp above the water level is wet. Concrete boat ramps are generally not suitable for seaplanes. Ramps are known to be usually quite slippery, so pilot and passengers must be very cautious of their footing when walking on the ramp.

3.3 Location

Because ramps are the transition point from water to land, the site should offer a minimum width of 100 feet (30 m) of unobstructed water operating area (a turning basin) directly offshore from the ramp in the direction from which approaches are normally made (see figure 3-1).

3.4 Design Concept

Ramps are of fixed or hinged type construction having predetermined lengths with a submerged ramp toe (entrance point for seaplanes.) Fixed ramps as compared to hinged ramps are more common but become relatively more costly in shallow areas or where the water level variation exceeds 8 feet (2.4 m). One factor increasing the cost is the need for longer ramps (see subparagraph 4.1 (c) Slope). Ordinarily, piling or piers are commonly used to support the stringers of fixed ramps.

3.5 Fixed ramps are secured to a stable on-shore structure in some cases a seawall and usually weighted down or attached to a fixed underwater footing by the ramp toe.

3.6 Hinged ramps are allowed to rise and fall with the tide by means of a hinge on the shore end, while the ramp toe end is buoyed to a predetermined depth below the mean low water level.

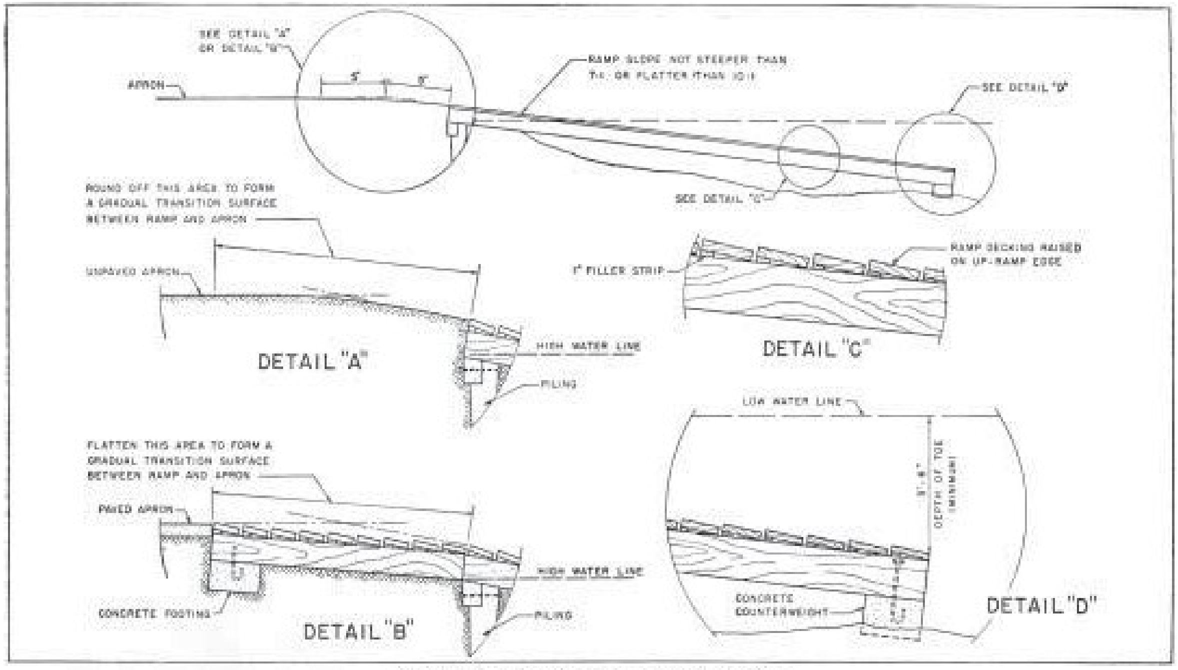


Figure 14. **Details of Ramp Construction**

Figure 2-1. Ramp with submerged ramp toe

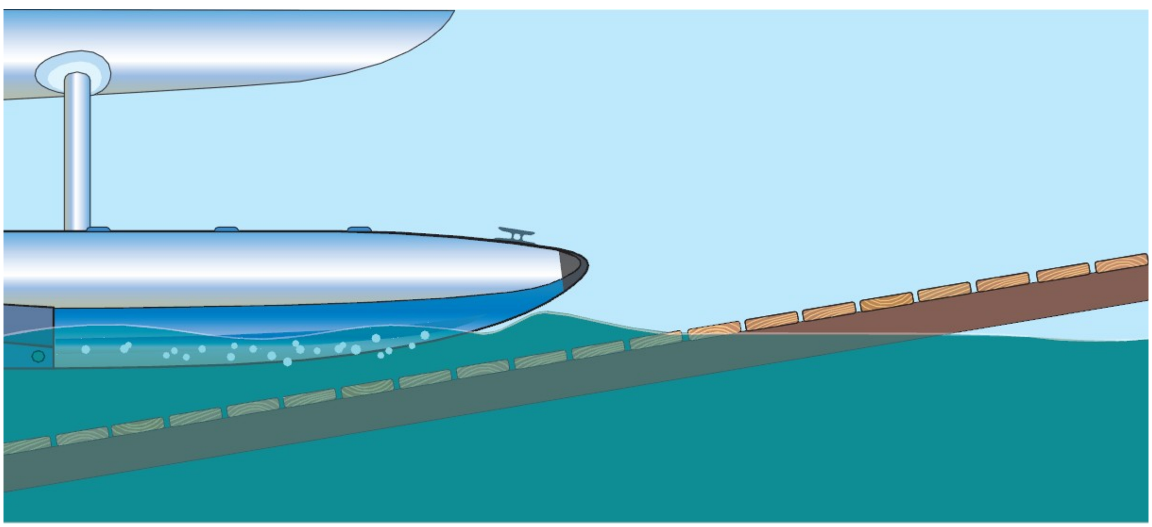


Figure 2-2. Illustration of a submerged ramp toe

3.7 Length

The overall length of the ramp is determined by two principle factors: the ramp slope and depth of the submerged ramp toe.

3.8 Slope. The slope of a ramp should not be greater than 6:1, with flatter slopes ranging down to 10:1 being more desirable. Slopes flatter than 10:1 are usually too long and costly to construct. Ramps intended to serve tri-gear amphibian airplanes should not be steeper than 8:1

since, with steeper slopes, the hull of some amphibian airplanes may drag on the ramp as the craft enters the water.

3.9 Submerged Ramp Toe. All ramps should have their ramp toe below the water level during mean low tide as shown in figure 2-1. To determine the amount of submergence, it is recommended that the designer (user) determine the maximum draft of the seaplane(s) using this feature. In many cases, a 4-foot (1.2 m) submerged depth of ramp toe will provide sufficient clearance for most waterborne airplanes. A 3-foot (1 m) depth will accommodate all but the heaviest types of amphibian airplanes. An 18-inch (45 cm) depth should be adequate for small, light seaplanes. In all cases, depth dimension should be established based on the mean low tide datum in that locality.

3.10 Width

In figuring the ramp width, the designer needs to use the outside-to-outside float dimensions of seaplanes and the treads of amphibian airplanes. For public seaplane facilities, use the minimum practical width dimension that is based on the largest seaplane or amphibian being accommodated plus additional space on either side of the ramp. This minimum practical width allows for (1) wind/current drifting when pilots approach the ramp toe and (2) a safer working space for personnel handling a craft on the inclined ramp.

3.11 A ramp width of 30 to 40 feet (9 to 12 m) will accommodate generally all seaplanes and amphibian airplanes in most wind, current, and tidal conditions. The Seaplane Pilots Association Ramp reports that the ramp width determination does not necessitate consideration of the wheel tread of present-day float airplane dollies. Normally, the dolly wheels are spaced to fall between the floats, and in cases where the wheels are outside, nearly all treads are 16 feet or less.

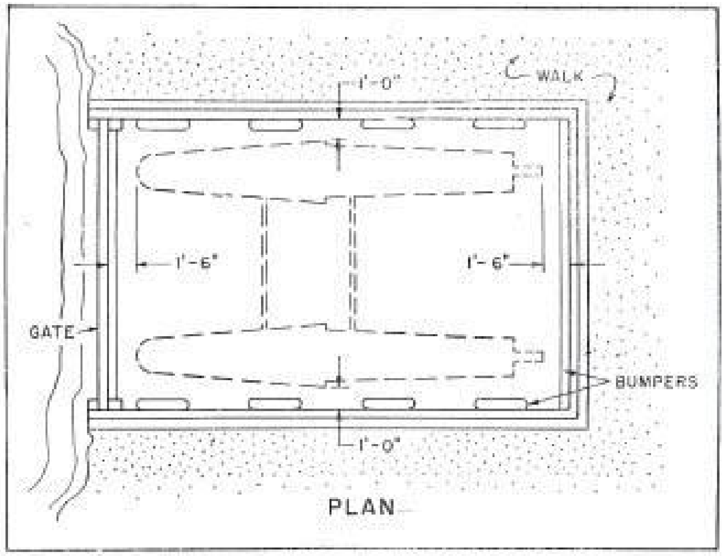
3.12 For smaller seaplanes and amphibious airplane of gross weights up to approximately 15,000 pounds (6,820 kg), the above ramp width may be reduce to 15 feet (4.5 m) when the site offers relatively calm water and wind conditions. For more adverse conditions, pilots of such small seaplanes and amphibian airplanes should be able to make an unattended ramp approach after adding an additional 5 feet (1.5 m) to the 15-foot width.

3.13 Decking

Decking planks can be laid diagonally or at right angles to the line of travel. Planks should be placed rough side up with a 0.5 inch (1.3 cm) space between the planks to facilitate drainage and expansion. When laid at right angles to the line of travel, the up-ramp edge of each plank may be raised up to 1 inch (2.5 cm) to permit the hull of the craft to slide easily and still provide good footing for people walking on the ramp. It is highly recommended that fasteners - bolts, nails, and spikes - used to attach the decking planks be countersunk to avoid damage to floats or tires.

3.14 SLIPWAYS

Seaplane owners may want a private slipway in which to berth their seaplane. Slipways are commonly rectangular in shaped berths form by dredging the shore line. Besides being economical, they often need no specially constructed sides or ends. Figure 2-3 illustrates an example of a slipway.



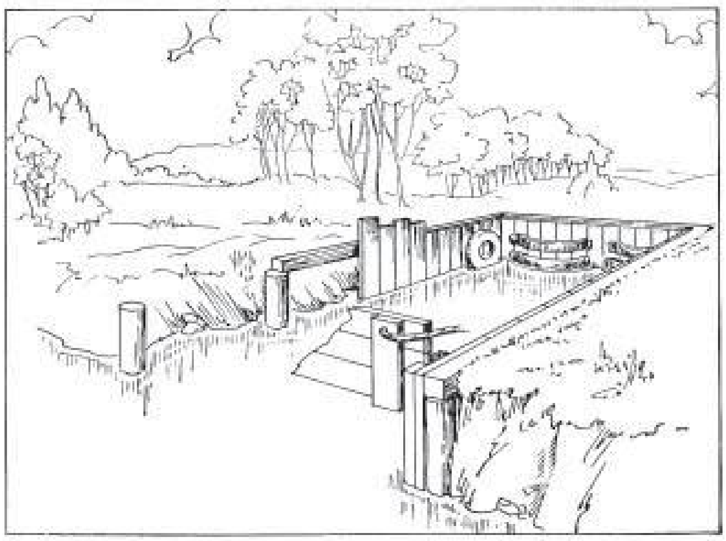


Figure 13. Seaplane Slip-Way

Figure 2-3. Minimum recommended clearances for a private slipway

3.15 Location

A slipway should be where the variation in the water level is not greater than 2 feet (0.6 m) while maintaining a minimum water depth between the submerged ground bottom and mean low tide of not less than 2 feet (0.6 m).

3.16 Dimensions

The inside dimensions of the slipway should be 2 to 3 feet (0.6 to 1 m) wider than the seaplane's floats and 3 to 4 feet (1 to 1.2 m) longer than the rudder-down float length.

3.17 Features

Some owners of a slipway install agate to reduce wave action. Regardless of the degree of wave action, slipways, some form of bumpers, made of materials such as expanded polystyrene, old automobile tires, cut strips of tires, etc., should be attached to inside of the front wall, side walls, and, if provided, the gate to prevent damage to the seaplane's floats. Additionally, it is advisable that the slipway have some means to secure the seaplane while in the slipway, for example cleats or tie downs.

3.18 PIERS

Piers or fixed over-water structures as shown in figure 2-4 may be used where the variation in water level is 16 inches (45 cm) or less. The length of the pier should extend into the water to a point where the water depth is adequate for the types of seaplanes being handled, usually when the depth at mean low water level is at least 3 feet (1 m).

Figure 2-4. Example of a small pier with securing cleats

3.19 Location

A minimum of 100 feet (30 m) of unobstructed water operating area or a turning basin should be available in the direction from which approaches are normally made to the pier. At those locations where timber piles can be used, they are the most economical type of construction. Water jetting and pile driving are common methods of setting piles. Piers should be located so that access to them by the public will not require the public to cross the land-side apron or hangar area. Since piers are constructed with decks above mean high water, most of the timber supporting members will be subject to alternate cycles of wetting and drying. To prevent decay, creosote or similarly treated timbers must be used.

3.20 Design Concepts

General design for a pier is to incorporate an access walkway or gangway that is at least 5 feet in width – normally 8 to 10 feet (2.5 to 3 m) - with hand railings on both sides ending with an open- decked handling area of approximately 30 by 50 feet. The length of the pier should extend into the water to a point where the water depth is adequate for the types of aircraft to be handled, usually when the depth at mean low water level is at least 3 feet (1 m). An open-decked handling area of this size provides tie-up space for four small or three large seaplanes. On extra- long piers, where the walking distance is too great for convenient handling of service equipment, a small storage shed may be located near the open decked handling area. If provided, fueling and lubrication facilities should also be located at or towards the end of the pier. The supporting timbers and decking of fixed structures used for passengers, cargo operations, etc., need to be designed to support the anticipated live loads (see local building codes). Decking spaced with a 1/2 inch (1.3 cm) gap between planks will allow for drainage and expansion.

3.21 Obstruction Free Decks

The surface of the fixed dock should be free of tall objects to permit the wings of seaplanes or small amphibian airplanes to come alongside the pier for berthing. For example, an unobstructed dock surface of 21 feet (6.5 m) from the pier's edge will provide the wing clearance for most seaplanes or small amphibian airplanes to come along safely and tie down.

3.22 Tie Down Methods

An appropriate number of cleats along the open areas of the pier should be provided along the sides of the deck to secure seaplanes. If the pier has no side handrails, a continuous 4 by 4 inch (10 cm by 10 cm) wood rail, raised approximately 2 inches (5 cm) above the deck, commonly called bull rail or tie rail, is recommended. Bull rails should have cleats and be secured by long lag bolts to pier's cross-members or logs. Corner posts, if provided, should extend slightly above the deck to serve as bollards. Additionally, bumpers of sufficient length installed along the sides of the structure and extending below the edge of the deck are recommended to prevent damage to the floats of seaplanes.

3.23 FIXED DOCKS

The two most common docks used at seaplane bases are fixed decks and floating docks as shown in figure 2-5.

3.24 Location

It is recommended that fixed docks have a minimum of 100 feet (30 m) of unobstructed water operating area or a turning basin available in the direction from which approaches are normally made to the fixed dock. It is preferable that fixed docks be located so that seaplanes have access to two sides. Such placement allows seaplanes to be secured on the shore side of the fixed dock during inclement weather, i.e., the fixed dock functions as a breakwater.

Figure 2-5. Example of Alaskan fixed dock with parking ramps

3.25 Obstruction Free Decks

The surface of the fixed dock should be free of tall objects to permit the wings of seaplanes or small amphibian airplanes to come alongside the dock for berthing. For example, an unobstructed dock surface of 21 feet (6.5 m) from the dock's edge will provide the wing clearance for most seaplanes or small amphibian airplanes to come along safely and tie down.

3.26 Dimensions

Fixed dock dimensions are determined by the number of seaplanes simultaneously using or projected to use the dock. In determining the number of berths alongside the dock, use the length of design craft length plus 20 feet (6 m) to offer clearance both fore and aft. A dock should be wide enough to allow seaplanes to dock on opposite sides with at least a 10-foot (3 m) wingtip-to-wingtip clearance.

3.27 Tie Down Methods

An appropriate number of cleats along the open areas of the dock should be provided along the sides of the deck to secure seaplanes. If the dock has no side handrails, a continuous 4 by 4 inch (10 cm by 10 cm) wood rail, raised approximately 2 inches (5 cm) above the deck, commonly called bull rail or tie rail, is recommended. Bull rails should have cleats and be secured by long lag bolts to pier's cross-members or logs. Corner posts, if provided, should extend slightly above the deck to serve as bollards. Additionally, bumpers of sufficient length installed along the sides of the structure and extending below the edge of the deck are recommended to prevent damage to the floats of seaplanes.

3.28 FLOATING DOCKS (FLOATS)

Floating docks, commonly referred to as "floats," are commonly connected to the shore by a gangway thereby offering the greatest flexibility in providing docking facilities shown in figure 2-6. This type of facility rides with the wave actions and therefore is equally satisfactory in areas of great or negligible variations in water-levels. To permit this movement, universal action must be provided in anchoring and attaching floats together. Figure 2-6 shows various types of floats for docking.

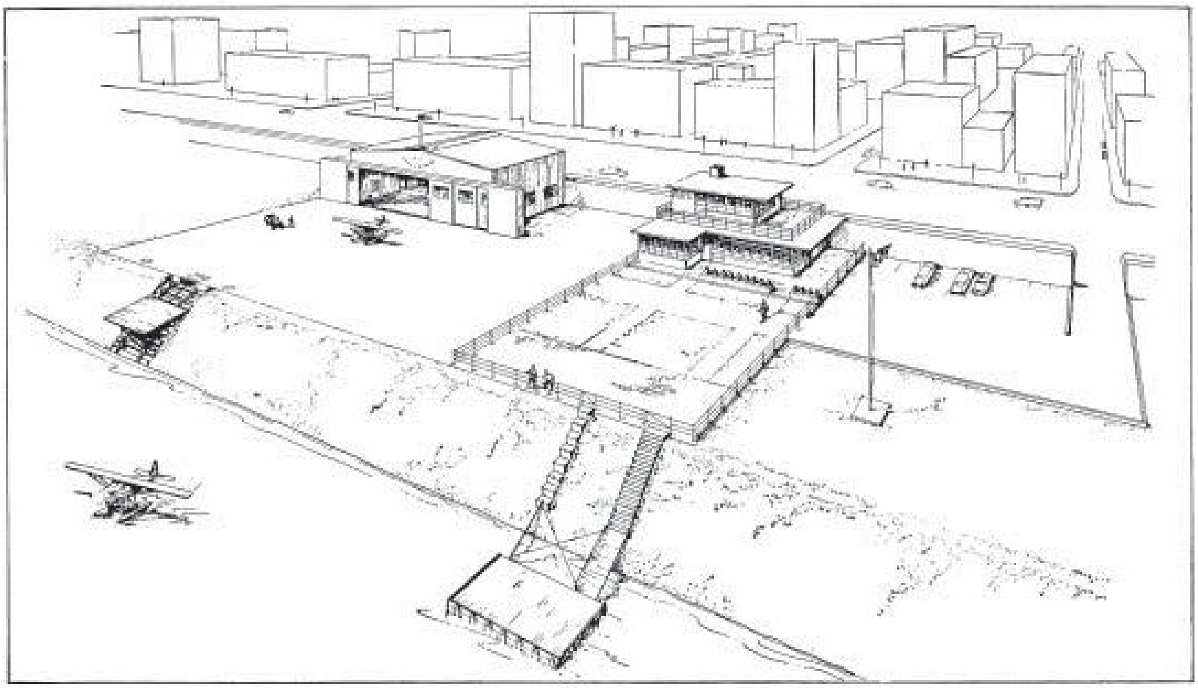


Figure 2-6. Illustration of a floating dock (float) and marine railway

3.29 Flotation materials

A variety of materials have been used to provide buoyancy for floats, e.g., logs, milled timber, polystyrene billets, fiberglass, and steel drum containers.

3.30 Polystyrene billets have proven to be satisfactory buoyancy devices for floats. The planks should be evenly distributed, rather than piled at concentrated points, under the superstructure. A barrier of 6 mil (0.15 mm) black polyethylene sheeting should be placed between all treated timber and flotation material contact surfaces. The load supporting characteristics of polystyrene or styrofoam is approximately 50 pounds per cubic foot (800 kilograms per cubic meter) of material. A common billet size is 10 inches by 20 inches (25 by 50 cm) by 9 feet (3 m). Further data on this material may be obtained from the manufacturers. It is recommended that foam planks be enclosed with woven galvanized wire to prevent damage from aquatic animals and sea gulls. Polystyrene deteriorates when exposed to petroleum products, gas spills, etc.

3.31 Fifty-five gallon steel drums are commonly used as flotation devices. Drums should be placed symmetrically around the perimeter of the float to ensure stability. They are fastened to the float by steel straps of sufficient length to extend around the drum and main framing members of the float. Foam, fiberglass, plywood boxes, and steel drum floats are susceptible to damage where deadheads or strong currents prevail. Steel drums have a short life expectancy in salt water. The pilot should be aware of the corrosive effect of galvanic action caused by dissimilar metals. Securing the aircraft to steel or metal drums, by a chain or wire rope, will start a galvanic action that will corrode the aluminum floats. Satisfactory floats can be improvised by using life rafts, small floating docks, pontoons, and similar devices which can be obtained in the open market.

3.32 Where relatively large and straight timber is available, logs may be used to construct a raft-type float.

3.33 Dimensions

Float dimensions are determined by the number of seaplanes simultaneously using or projected to use the float. In determining the number of berths alongside the float, use the length of design craft length plus 20 feet (6 m) to offer clearance both fore and aft. A float should be wide enough to allow seaplanes to dock on opposite sides with at least a 10-foot (3 m) wingtip-to- wingtip clearance. Floats as narrow as 7 feet (2 m) have been used where a long, floating dock parallels the shoreline. Floats are usually constructed from locally available materials.

3.34 Deck Free Surfaces

The surface of the float(s) should be free of tall objects to permit the wings of seaplanes or small amphibian airplanes to come alongside the dock for parking. For example, an unobstructed dock surface of 21 feet (6.5 m) from the dock's edge will provide the wing clearance for most seaplanes or small amphibian airplanes to come along safely and tie down.

3.35 Connecting Walkways (Gangways)

Floats are usually connected to the shore or a pier with a gangway an example shown in figure 2-7. The length of the access platform is determined by the maximum variation in the water-level. A slope ratio of 2.75:1 is the maximum for safe and easy walking and to prevent the handrails from becoming an obstruction to wings. Common practice is for gangways to be at least 15 feet in length and at least 5 feet in width. Hand rails, preferably on both sides of the gangway, should be provided to assist persons using the gangway. Floats having a gangway that is less than 5 feet (1.5 m) in width should have longitudinally spaced outriggers every 8 to 10 feet (2.5 to 3 m) to prevent excessive rolling of the walking surface.

Figure 2-7. Example of a gangway in Alaska

3.36 Tie Down Methods

An appropriate number of cleats along the open areas of the dock should be provided along the sides of the deck to secure seaplanes. If the dock has no side handrails, a continuous 4 by 4 inch (10 cm by 10 cm) wood rail, raised approximately 2 inches (5 cm) above the deck, commonly called bull rail or tie rail, is recommended. Bull rails should have cleats and be secured by long lag bolts to pier's cross-members or logs. Corner posts, if provided, should extend slightly above the deck to serve as bollards. Additionally, bumpers of sufficient length installed along the sides of the structure and extending below the edge of the deck are recommended to prevent damage to the floats of seaplanes.

3.37 Combined Float/Ramps

Floats connected to a master float are sometimes equipped with equipped with ramps at one or both ends. This type of float is usually constructed at right angles to the master float. A 144 by 40-foot (44 by 12 m) deck, with 10-foot (3 m) wide floats, and 15-foot (4.5 m) ramps on both sides can be used for seaplane storage. Additional docks or floats can be added as needed. Also, a long, narrow float with ramps on both sides is adequate for mooring or tying down light, single-engine floatplanes.

3.38 FLOATING BARGES

A barge anchored offshore can make an excellent seaplane facility by providing some form of public access when the desired location for shoreline facilities is not practicable or possible. To increase this option's serviceability, a barge can be fitted with a floating dock for tying seaplanes and/or a ramp. Larger barges occasionally have a lounge, service shop(s), possibly offices on board. The barge may be anchored directly to the shore or to a pier that provides booms and a gangway or anchored offshore in a fixed position that provide some means for the public to reach the facility.

3.39 OPERATING SPACE BETWEEN SHORELINE FACILITIES

The desired clearances between the various docking and pier units, barges, and ramps obviously will have a decided influence on their arrangement and location. Each of these units should be so located that a seaplane may approach and tie up in anyone of the available berths when adjacent units are occupied.

3.40 When seaplanes are operated between such units under their own power, the recommended minimum separation between the designated edge of the turning basin and the near faces of adjacent units (fixed docks, piers, floats, ramps, or barges) is 50 feet because a water-borne aircraft can normally be taxied safely past obstructions as close as about one half of its wingspan.

3.41 Where seaplanes are moved by hand between adjacent units, the separation between the designated edge of the turning basin and these adjacent units may be less than 50 feet to facilitate the handling process.

3.42 It is recommended that the following safety equipment shall be readily available on the floating platforms, dock, ramps and wharfs:

a. 30 m life line ropes – adequate to cater for the number of seaplane docking positions
b. Life Rings - adequate to cater for the number of seaplane docking positions
c. Fire extinguishers – for each seaplane docking position one extinguisher

4 OBSTACLE LIMITATION SURFACES (OLS) (For discussion)

Obstacles limitation Surfaces of the Water Aerodrome shall be established as per ICAO, Annex 14 Volume I. Chapter 4.

5 VISUAL AIDS FOR WATER AERODROMES

5.1 Wind Indicators

a) Unless the direction of the wind can be determined by radio, a wind direction indicator shall be installed.
b) Where a wind direction indicator is installed it shall be;
   I. of a conspicuous colour
   II. in the form of a truncated cone

c) The wind direction indicator shall be;

   I. visible at a height of 1000feet above the indicator; and
   II. Visible from any portion of the maneuvering area.

5.2 Marker Buoys

Marker buoys shall be visible to aircraft maneuvering

   I. on the surface of water; and
   II. 300m above the landing area

5.3 Take-off and Landing Area Markers

5.3.1 Where there is no conflict with marine traffic or marine regulations;

a) Both ends of the take-off and landing area shall be marked with floating markers.
b) The markers shall be visible from a distance greater than 2 nautical miles.
c) Each markers shall be
   I. Coloured International orange and white; or
   II. Alternating international orange and white
   III. Where it is impracticable to mark the take-off and landing area as specified in(I),
      (i) Guidance such as geographical points and/or other visual references shall be provided to designate the take-off and landing area; and
      (ii) These visual references shall be identified and published.

5.4 Strobe Lights/ Beacon lights

6.4.1 For floating platforms located in open waters strobe lights/ bacon lights shall be installed, it shall be

a) White, quick flashing
b) Located in an area that is easily and constantly seen by both marine and air traffic; and
c) Radio activated or activated by the water aerodrome operator or designated agency.
d) Beacon lights shall be installed on the floating platforms on the outer reef and its height shall not be one (1) meter from the level of the platform. The beacon and its fixing strut shall be made out of frangible material. The beacon shall be ON from dusk to dawn.

5.5 Hazardous Areas Markings

a) Where shoals or other hazards could endanger an aeroplane, marker buoys shall be installed to clearly indicate the hazardous area.

b) Marker buoys for delineating hazardous area shall be coloured international orange.

c) Danger zone on the platform underneath the Aircraft wing when the aircraft is docked to the floating platform shall be marked with a "DANGER" sign and painted alternating international orange and white diagonal stripes, restricting passengers from the docking area until aircraft propellers have come to a complete stop.

5.6 Special VRF Operations

6.6.1 At water aerodromes where Special VFR operations are allowed, at least one water runway's edge markers and threshold markers should be lighted for the benefit of pilots. In addition, this will enhance safety during dusk and dawn operations.

6 RESCUE AND FIRE FIGHTING SERVICES (RFFS)

6.1 At a water aerodrome where the hours of operation are notified, the RFFS should be available from 15 minutes before till 15 minutes after the times published. Where the hours of operation are not notified, the RFFS should be available prior to the engine start of the first departing seaplane, or to the first arriving seaplane commencing its final approach; and until the last arrival is moored, or 15 minutes after take-off of the final seaplane.

6.2 RFFS personnel shall receive initial and recurrent competence-based training relevant to their role and task, and shall at all time be physically capable of performing the tasks expected of them.

6.3 Where the Daily Average movements are under 100

6.4 Procedures for the enhancement of passenger and crew post-accident survival should be developed, and facilities in terms of staff and equipment, appropriate to the type of seaplane operations anticipated at the water aerodrome, should be provided. Within the provision of these procedures and facilities, account should be taken of the effect that variable environmental conditions might have on the ability of the rescue staff to respond rapidly to accidents and incidents.

6.5 Where provided, a rescue vessel should be of a design and size that would allow survivors to be brought aboard, or it should be equipped with an adequate number of floatation devices of a design that would enable survivors to remove themselves from the water.

6.6 All vessels shall be at least 200 m away from the floating platform and the maneuvering area when the seaplane is on final for landing or ready for take-off

6.7 Where the Daily Average Movements are above 100.

6.8 At water aerodromes where the average daily movements exceed 100, rescue and firefighting vessel(s) shall be provided appropriate to the level of protection required.

6.9 The rescue vessel/(s) provided shall be appropriate for the environment involved and they shall be capable or shall carry equipment capable of accommodating twice the maximum number of passengers carried by the largest type of seaplane serving the water aerodrome.

6.10 The level of protection provided at a water aerodrome for rescue and firefighting shall be appropriate to the water aerodrome using principles in paragraphs 9.2.4 and 9.2.5 of ICAO Annex 14 Vol I – 6th Edition.

6.11 Types of extinguishing agents and the amount of water for foam production and complimentary agents shall be provided on the rescue and firefighting vessel/(s) in accordance with the water aerodrome category determined under Table 9-1 and Table 9-2 of ICAO Annex 14 Vol I – 6th Edition..

6.12 The following equipment shall be available in rescue and firefighting vessels:

a. Area Maps
b. Navigational Charts
c. Bailing Buckets
d. Water Pumps
e. Wool Blankets (for passengers and crew)
f. Bullhorn(s)
g. Communication Equipment
h. Emergency Lights
i. Flares
j. Forcible Entry Tools
k. Marine Night Vision Binoculars
l. Life rafts (with paddles or oars)
m. Medical Kit
n. Navigational Equipment
o. Portable Resuscitation Equipment
p. Flood Lights (500 watts or greater)
q. Rescue Nets
r. Stretchers and Litters
s. Rescue Throwing Bags and Anchors

6.13 A discrete communication system shall be provided linking the water aerodrome fire station, control tower (if available), fire and rescue vessel/(s), fire and rescue vehicles and any other fire station on the island.

6.14 An alerting system for rescue and firefighting personnel, capable of being operated by that station, shall be provided at a fire station, any other fire station on the island and the aerodrome control tower.

6.15 RESPONSE TIME

6.15.1 For water aerodromes within the house reef, the operational objective of the RFFS shall be to achieve a response time not exceeding three (03) minutes to any point of each operational water runway, in optimum visibility and surface conditions.

6.15.2 Where water aerodromes are located outside the house reef of an island and where access is not easy to the floating platform, the response time shall be as agreed by the Regulatory Authority and the operator and as such, this time shall be recorded and reflected in the Aerodrome Emergency Plan (AEP) for that locale.

7 EMERGENCY PLANNING

7.1 The licensee shall prepare an Aerodrome Emergency Plan (AEP) for the particular water aerodrome or floating platform and shall submit the AEP to the Regulatory Authority for approval/acceptance.

7.2 The emergency plan should consider the particular hazards associated with seaplane operations, including:

a. passenger evacuation into a further life-threatening environment, e.g. deep water;
b. the onset of hypothermia, and its associated effects, during and following prolonged immersion in cold water; and
c. the immediate toxicity and respiratory effects on survivors in the water following the ingestion of floating fuel and oils and their associated vapors, and fire suppressant foams, powders and gases.

7.3 AEP shall contain provisions for:

a. water rescue;
b. fire response; and
c. recovery of disabled aircraft from the movement area.

7.4 Additional guidance on seaplane accidents in the water is outlined in Appendix 6 to the ICAO Airport Services Manual (Doc 9137) Part 7.

7.5 The AEP shall contain procedures for periodic testing of the adequacy of the plan and for reviewing the results in order to improve its effectiveness.

7.6 The AEP shall be tested by conducting:

a. a full-scale water aerodrome emergency exercise at intervals not exceeding two years; and

b. partial exercises in the intervening year to ensure that any deficiencies found during the full-scale water aerodrome emergency exercise have been corrected; and reviewed thereafter, or after an actual emergency, so as to correct any deficiency found during such exercises or actual emergency.

8 WILDLIFE HAZARD MANAGEMENT

8.1 Licence holders shall provide a Wildlife hazard management plan that includes the identification of the risk and hazards that may exist, and suitable mitigation measures.

8.2 All reasonable measures should be taken to discourage Wildlife from gathering in the movement area, and under anticipated departure and arrival flight paths.

9 Others

9.1 Obligations of the Water Aerodrome Operator

9.1.1 The Water Aerodrome Operator shall

9.1.2 Notify the Regulatory Authority in writing of any change in the physical characteristic or operations of the Water Aerodrome

9.1.3 Notify the relevant service provider of aeronautical information services of changes to operational information published in the aeronautical information publications; and

I. where a hazardous condition has been identified, issue a NOTAM identifying the hazard; and
II. where a change in water aerodrome operations constitutes a change to the provisions identified in the water aerodrome licence, ensure the change has been approved by the Regulatory Authority.

9.1.3 As soon as aware, the Water Aerodrome Operator shall give to the Regulatory Authority and to the provider of aeronautical navigation services, notice of any of the following circumstances;

a) any projection by an object through an obstacle limitation surface relating to the water aerodrome;
b) the existence of any obstruction or hazardous condition affecting aviation safety at or in the vicinity of the aerodrome;
c) any reduction in the level of services at the water aerodrome published in an aeronautical information publication;
d) the closure of any part of the maneuvering area of the water aerodrome; and
e) any other conditions that could be hazardous to aviation safety at the water aerodrome and against which safety measures are warranted.

9.1.4 The water aerodrome operator shall remove or cause to be removed from the dockside of the water aerodrome any object or other obstruction that is hazardous to aviation safety.

9.1.5 The water aerodrome operator shall

a) conduct a formal survey of the Obstacle Limitation Surfaces, based on lowest normal tide or water level
b) provide OLS charts and lists of obstacles in the vicinity of the Aerodrome environment and include the information in the WAOM.

9.1.6 Safety Inspection

Safety Inspections shall be carried out at regular intervals by the Aerodrome operator to check the underwater and above water structural conditions of platforms, docks, wharfs and ramps including the safety equipment provided. Records of such inspections shall be kept and available for inspection by Regulatory Authority, if and when required

9.2 **PERSONNEL**

9.2.1 Accountable Executive

9.2.1 The Water Aerodrome Operator shall appoint and identify a person as the accountable executive to be responsible and accountable on behalf of the Water Aerodrome Operator for meeting the requirements of this regulation.

9.2.2 No person maybe appointed as the accountable executive uncles the person has control of the financial and human resources required for the operations or activities authorized to be conducted under the operations licence.

9.3 Number of Personnel

6.3.1 The Aerodrome Operator shall determine the number of personnel required to comply with the requirements of this Part.

9.4 Appointment of Water Aerodrome Manager

9.4.1 The WAO shall appoint a Water Aerodrome Manager (WAM) who meets the requirements of this section.

9.4.2 The Water Aerodrome operator shall assign responsibilities, in writing to the Water Aerodrome Manager.

9.4.3 The Water Aerodrome Manager shall acknowledge in writing that the WAM know, accepts and will carry out the assigned responsibilities and a copy of the assigned responsibilities shall be in the WAOM.

9.5 Qualifications of the Water Aerodrome Manager

9.5.1 No person shall act a WAM unless the person successfully demonstrates, to the Aerodrome Operator, knowledge of the following;

a) contents of the WAOM
b) contents of the Water Aerodrome Certificate and related operational procedures; and
c) the regulations and standards in this section and other applicable regulations and standards necessary to carry out the duties and responsibilities to ensure safety.

9.6 Responsibilities of the Water Aerodrome Manager

9.6.1 The Water Aerodrome Manager shall ensure safe operation of the water aerodrome by

a) exercising operational management of the water aerodrome
b) coordinating the functions which impact on operational management
c) supervising the development and amendment of the WAOM
d) liaising with the regulatory authorities an all matters concerning Water Aerodrome Operation, including modifications to the WAOM;
e) liaising with external agencies on all matters which may affect Water Aerodrome Operations;
f) ensuring that the maintenance of the water aerodrome operations are being conducted in accordance with current regulations, standards and WAOM;
g) receiving and taking action on any aeronautical information affecting the safety of the Water Aerodrome;

Reference documents:

- ICAO Annex 14
- CAP 168, UK
- Safety Case **-** Air and Water Operations Victoria Harbour, Canada
- ASC 14 – 2 , Procedures for licencing of Water Aerodromes, Maldives
- FAA **AC No.:** 150/5395-1A