

SMS ORGANIZATION FOR SEAPLANE OPERATORS



TRANS MALDIVIAN AIRWAYS

Your Gateway to Paradise

World's Largest Seaplane Operator

Maldives consists of 1,192 coral islands grouped in a double chain of 26 atolls, spread over around 800km from North to South.

Tourism in Maldives follows a unique one-island, one-resort concept. As of 2024, there are over 170 active resorts operating in The Maldives.

Seaplanes are the most convenient and the preferred way to travel between these islands.



TMA'S UNBEATEN SAFETY RECORD

We are proud to have zero fatalities on-board in over 30 years of flying history.

TMA practices a safety “just culture” where every employee is trained and assigned personal responsibility on safety with a non-punitive reporting environment. We also have implemented a ICAO endorsed Safety Management System where any potential hazards are identified through regular assessments.





SMS by TMA in the Maldives

This presentation presents an overview of the Safety Management System (SMS) implemented by Trans Maldivian Airways (TMA) as a seaplane operator in the Maldives, highlighting unique operational challenges such as:

- limited facility equipment,
- infrastructure constraints,
- environmental & aesthetic considerations,
- variability of water runways, including;
- airspace congestion and restrictions,
- delayed emergency response
- and mitigation strategies especially being the world's largest seaplane operator.

Seaplanes: Integral to the Maldives



1989

Hummingbird Island Helicopters began the first air transfer service to resorts in the Maldives



1997

Hummingbird Island Helicopters renames to Hummingbird Island Airways and introduces seaplane service



2013

Maldivian Air Taxi & Trans Maldivian Airways merged into one airline, which adopted the name Trans Maldivian Airways

1972

The very first resort was opened: Kurumba Maldives, on Vihamanaafushi island in North Malé Atoll.

1993

Maldivian Air Taxi began operating a seaplane only operation with just 2 seaplanes

2000

Hummingbird Island Airways renamed as Trans Maldivian Airways, a seaplane-only operation



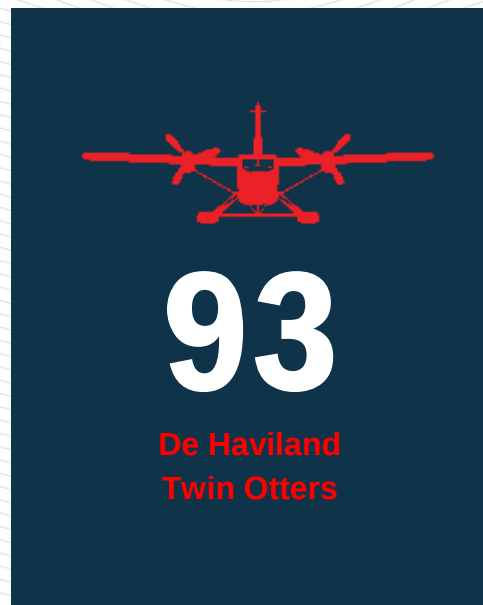
Seaplanes: Integral to the Maldives

 **600+**
flights per day

 **~200k**
flights per year

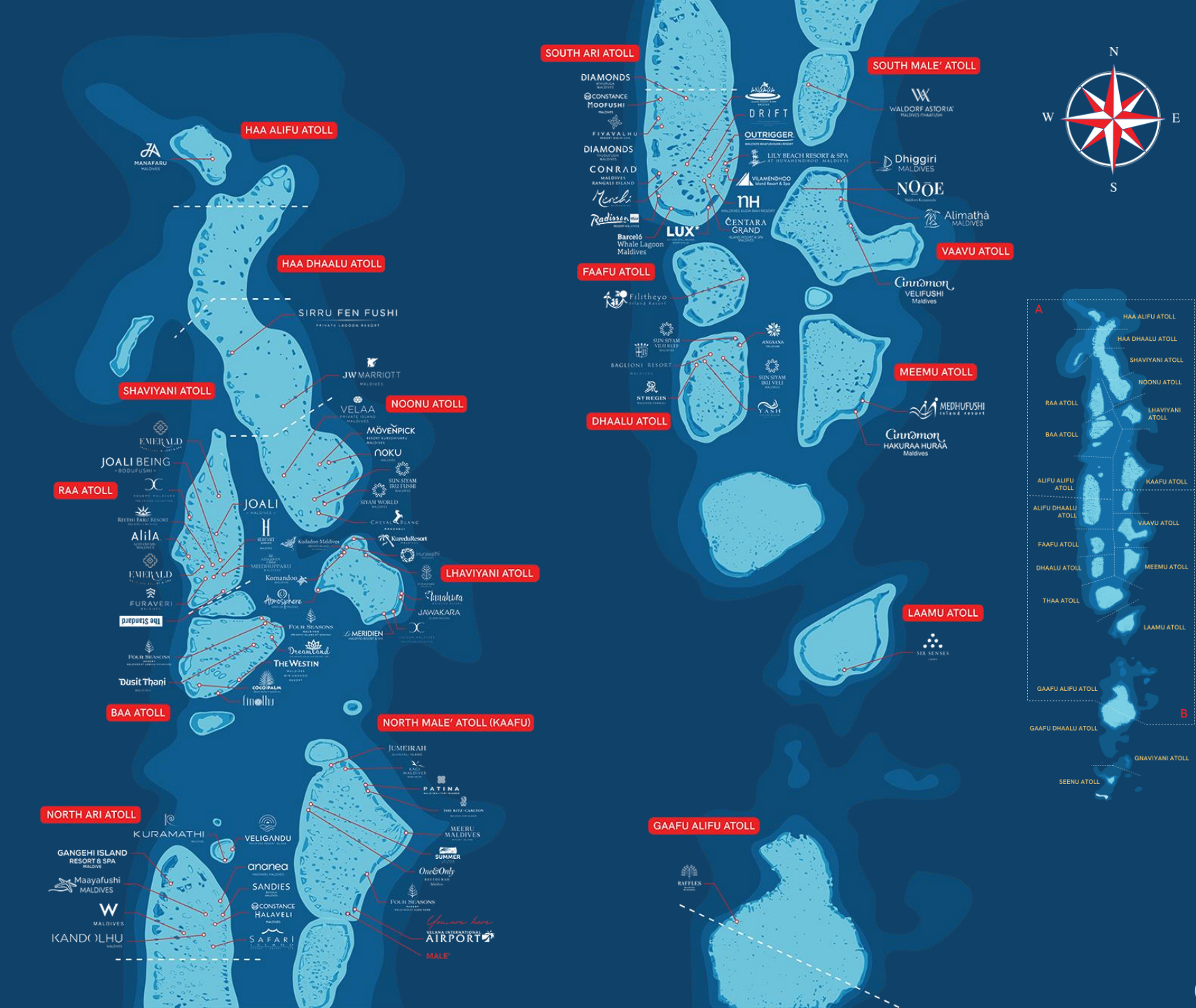
 **~2mil**
passengers per year

 **150+**
resorts serviced



Seaplanes Connecting the Islands

- Extensive Archipelago
- Rapid Island Access
- Cost-Effective Transport





Essential Water Aerodrome Features



Platforms and Docks

Attached and floating platforms for easy passenger access.

Fueling Points

Dedicated fuel points ensure seamless operations.



Navigation Aids

Buoys & markers for safe channels.

Mooring Buoys

Buoys for safe seaplane anchoring.



Velana International Airport (VIA)

World's Largest Seaplane Base

4

Water Runways

VIA houses four water runways. They are marked with buoys for safe operation.

100+

Seaplanes

The base can accommodate over 100 seaplanes. This capacity is for docks and maintenance.

600+

Daily flights

The Seaplane Terminal facilitates over 600 daily movements during peak seasons serving over 6000 passengers.

Velana International Airport (VIA)



Velana International Airport (VIA)





Water Aerodromes: Outstation Resorts

- Reference water runways – variable due to conditions.
- Dredged lagoon at some stations for take-off, landing and taxi operations.
- Multiple options at some stations for passenger transfer; fixed and floating platforms.
- Obstacle markings using colored buoys.
- Water Aerodrome categorization (Cat A to Cat D) depending on safety considerations.



A photograph of a white and red seaplane with two propellers, floating on a body of water. In the background, there is a low-lying island with some vegetation and a clear sky.

Safety Management System (SMS)

1 Safety Policy

Establish a clear commitment to safety. Define responsibilities and accountabilities.

2 Risk Management

Identify, assess, and mitigate hazards. Proactively address potential risks.

3 Safety Assurance

Monitor and evaluate safety performance. Continuously improve safety processes.

4 Safety Promotion

Foster a positive safety culture. Encourage reporting and communication.



Key SMS Activities

Risk Assessments

Assessing water aerodrome hazards and risks (pre-opening and continuously). Managing changes effectively through Management of Change assessments.

Safety Reporting

An effective safety reporting mechanism, supported by user-friendly SMS software, enables the capture of safety concerns

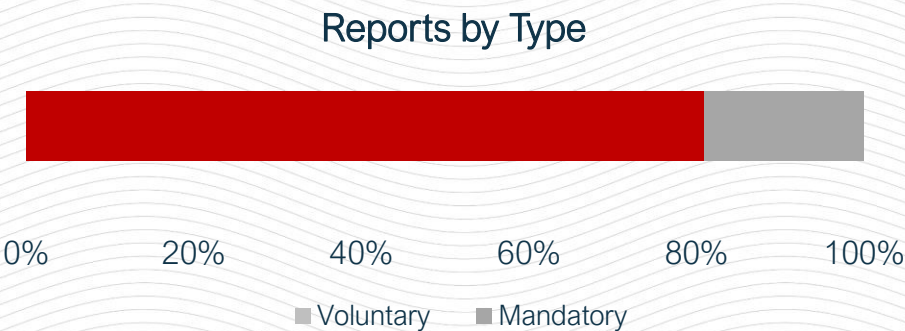
Audits and Inspections

Scheduled and unscheduled Safety Audits helps to proactively identify hazards within the systems.

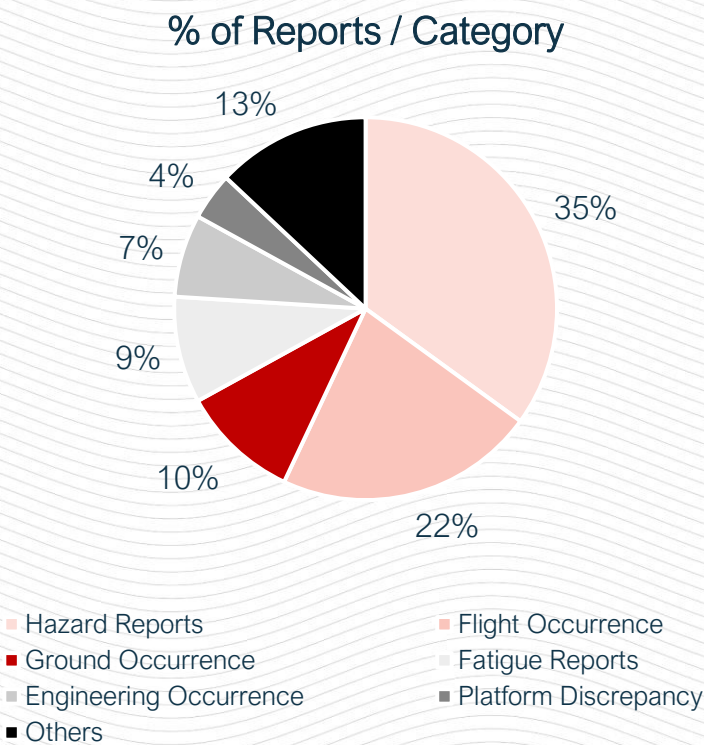
Regular water aerodrome facility inspections are also necessary.

Safety Statistics

- Close monitoring of safety statistics is essential for identifying trends that may affect the safety of the aerodrome and operations.
- The following are types of reporting categories that may be used, along with a 3-year reporting average for an operator:



- Top risk identified from Hazard Identification System (Safety reports, assessments, audits, inspections, etc.): **Vessel/aircraft/people movement at or near the operating area** (runway incursions from speedboats, water sports, diving etc.)



Key Challenges & Mitigations

1 Limited Facility Equipment

Challenges	Mitigation
• Lack of automated weather monitoring systems	• Real-time weather updates sharing • Weather updates from pilots in the vicinity
• Insufficient emergency equipment	• Regular Emergency Response drills





2 Infrastructure Constraints

Challenges

- Lack of fuel farms at all water aerodromes
- Lack of security screening
- Confined maneuvering areas within lagoons

Mitigation

- Thorough fuel planning.
- Sterile area with "One Island One Resort Concept."
- Resort security personnel to monitor parked aircraft. Additional security measures including physical screening.
- Establishing "Seaplane only Areas"
- Coordination with resort teams for coordination of seaplane movements



3 Environment and Aesthetics

Challenges

- Environmental regulations limit dredging which hinders improvements.
- Restricted lagoon spaces.
- Tourism priorities often emphasize aesthetics and conservation over safety.

Mitigation

- Collaborative efforts between operators and resorts/stakeholders.
- Educating stakeholders on aviation safety priorities.
- Joint planning during initial resort planning phase to align safety needs with resort priorities

4 Variability of Water Runways

Challenges

- Diverse geography leads to differing runway characteristics.
- Changing environmental conditions such as tides, swells, and winds

Mitigation

- Detailed water aerodrome charts showing layout, hazards, cautions.
- Classification of aerodromes based on unique characteristics
- Frequent NOTAMs and pre-flight briefings.



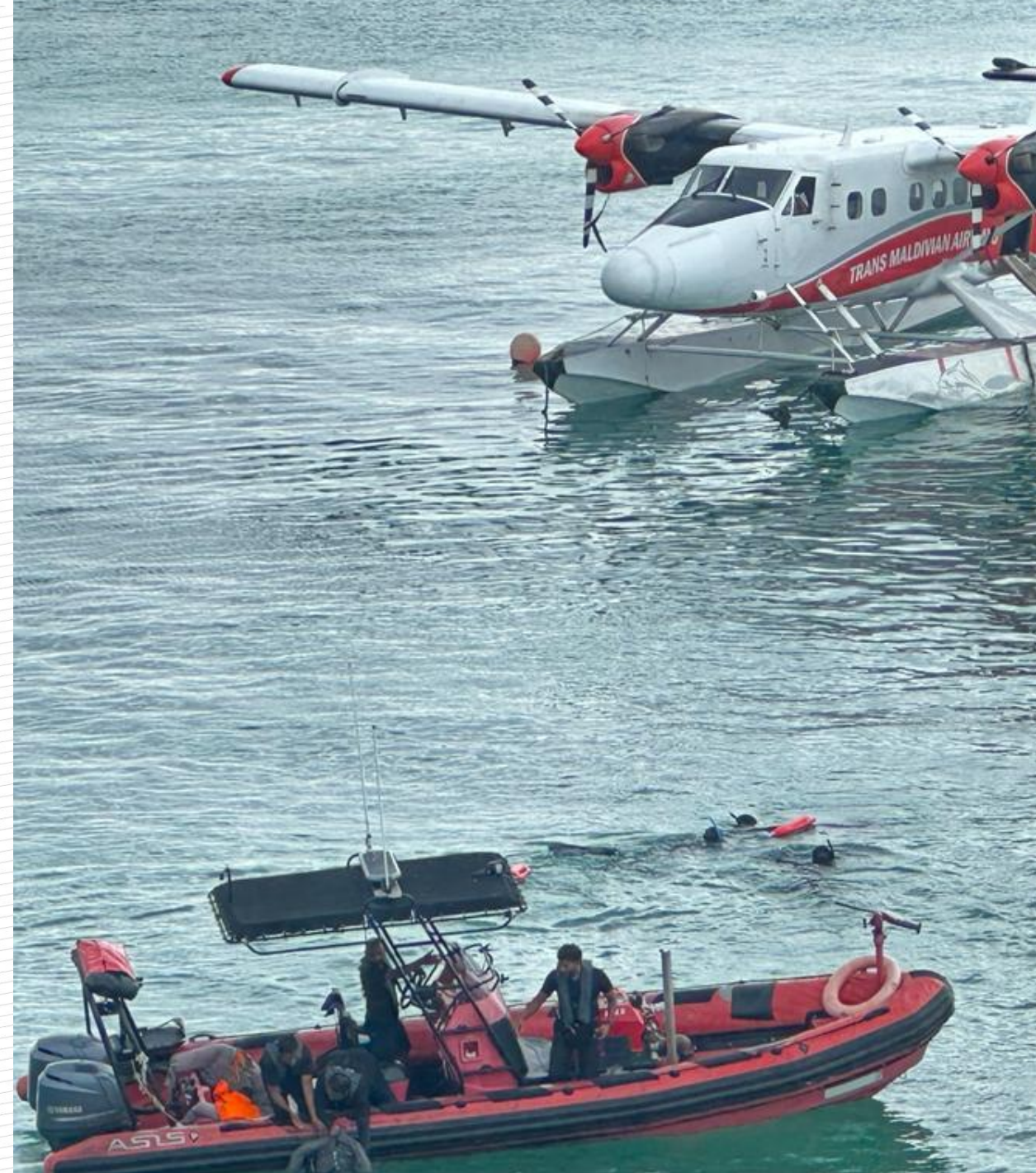
5 Delayed Emergency Response

Challenges

- Delayed rescue to remote/inaccessible locations.
- Limited equipment including mechanized dinghies.

Mitigation

- Station mechanized dinghies in identified key areas.
- Train resort and vessel operators on rescue tactics.
- Regular Emergency Response Plan testing through drills.



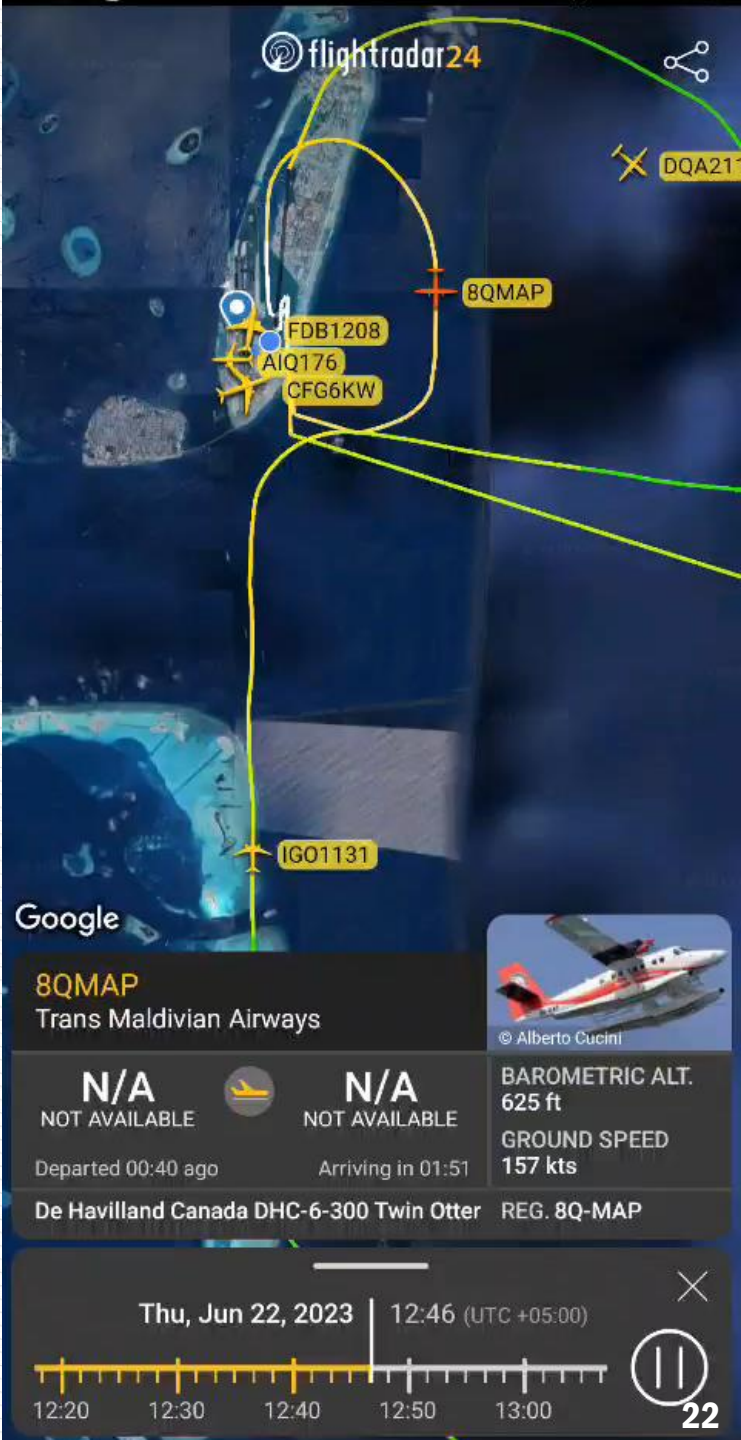
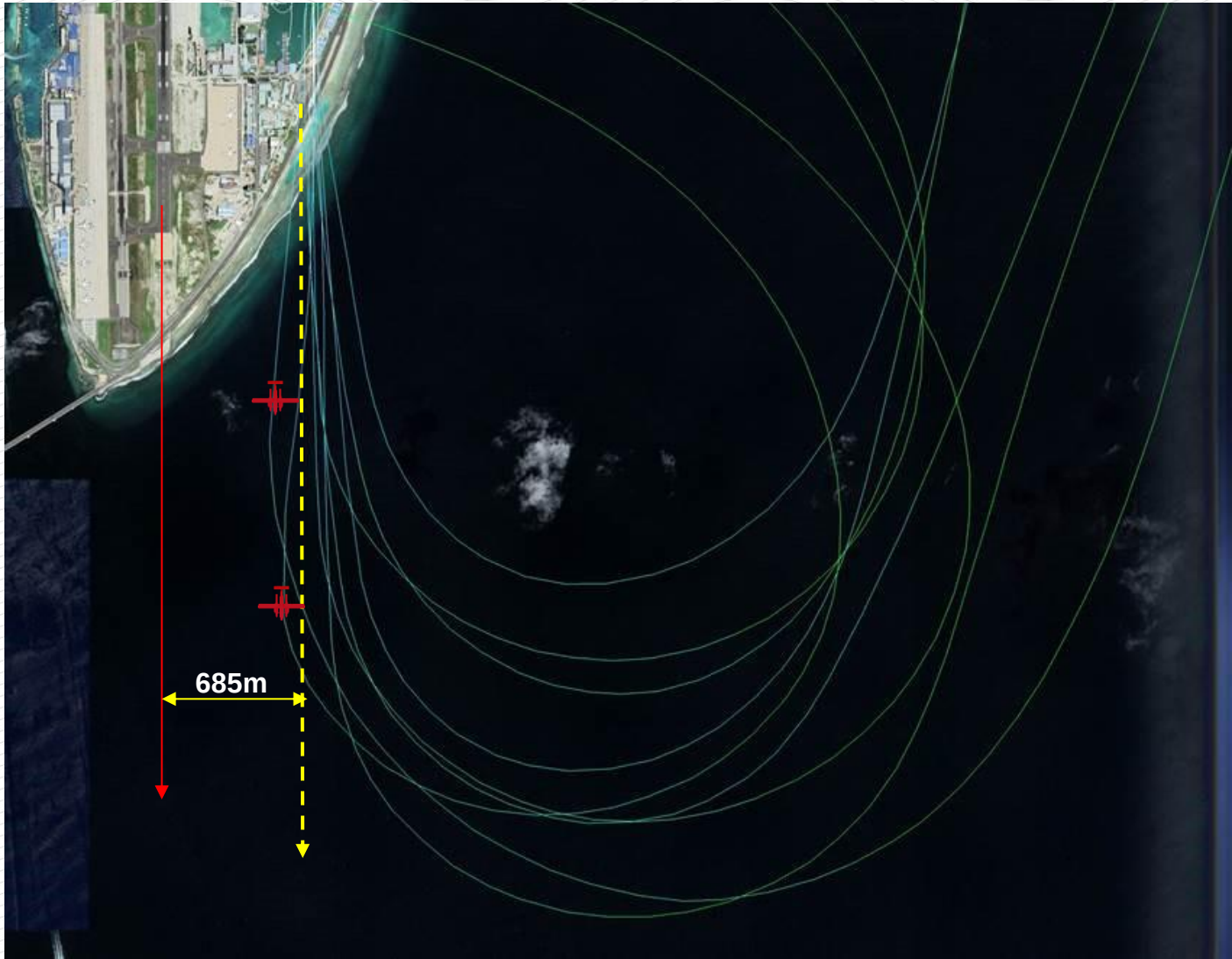


6 Airspace Congestion & Restrictions

CLASS C – AIRPROX

C - No risk of collision: The risk classification of an aircraft proximity in which no risk of collision has existed

6 Airspace Congestion & Restrictions



Current SMS Practices

Safety & Technical Assessments

This includes the initial assessment of new sites to proactively identify potential hazards and applying appropriate mitigations.

Crew Training

Crew are provided training to navigate through adverse weather conditions, and up to date information on any hazards pertaining to an aerodrome.

Collaboration

The identification of interfaces, and collaboration with resorts, and regulator on responsibilities.

Regular Drills

Scheduled drills and training to resort personnel on ditching and emergency evacuation.



Areas for Improvement

1 Infrastructure Development

Navigation Aids

Improve aircraft navigation aids. This ensures safer and more reliable flights.

Weather Monitoring

Enhance weather monitoring systems. Real-time data improves operational decisions.

2 Water Aerodrome Regulations

Standardization

Implement uniform regulations. This will improve safety and consistency across all water aerodromes.

Accountability

Strengthen resort management's accountability. This promotes responsible operations.





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Your Gateway to Paradise

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@transmaldivian #transmaldivian

W: www.transmaldivian.com