



Ditching, Emergency Flotation and Limited Overwater Operations

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Your safety is our mission.

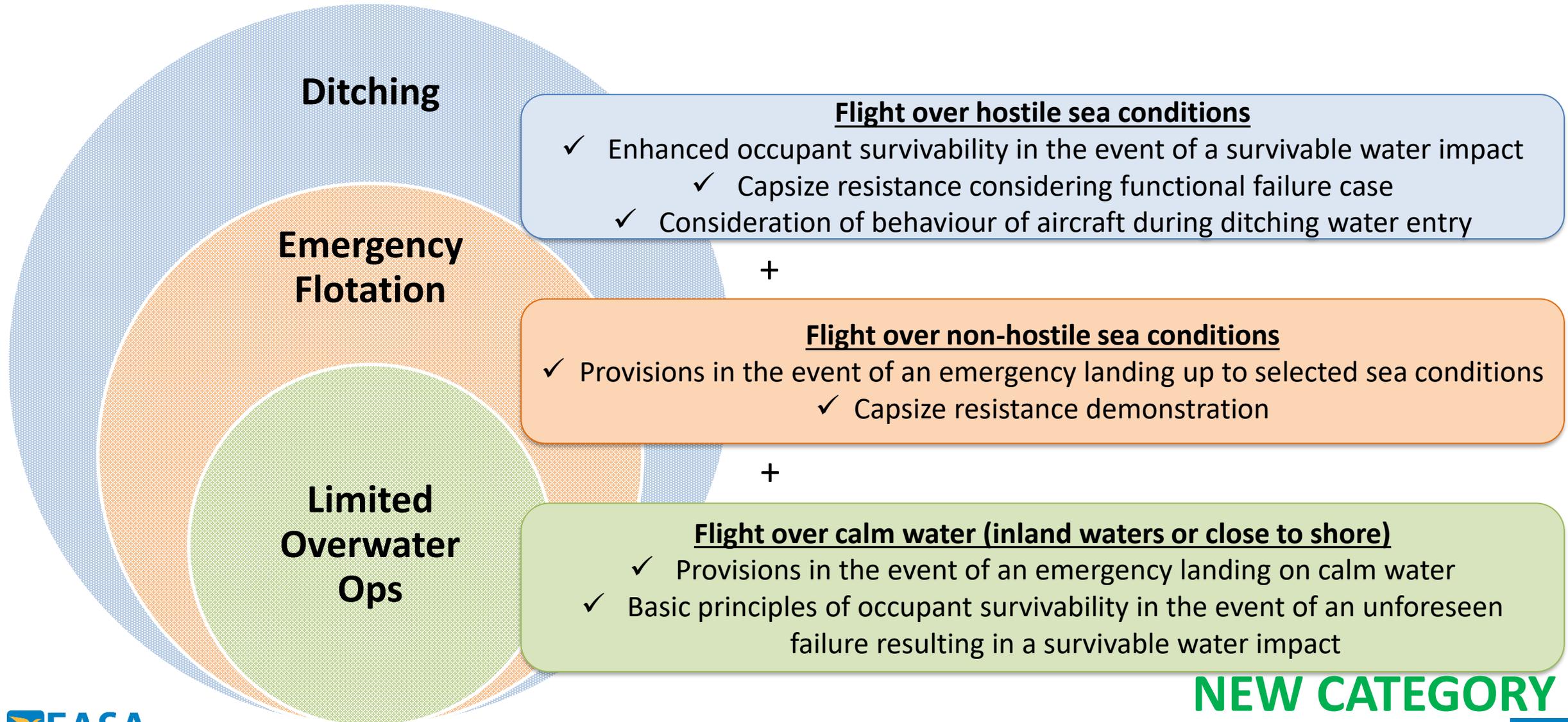
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Ditching, Emergency Flotation & Limited Overwater Ops

- Airworthiness Categories
- Phases of Water Emergency Landing:
 - Water Entry
 - Capsize Resistance
 - Egress
 - Underwater Egress
- Safety Equipment for Overwater Operations
- Summary

Airworthiness Categories

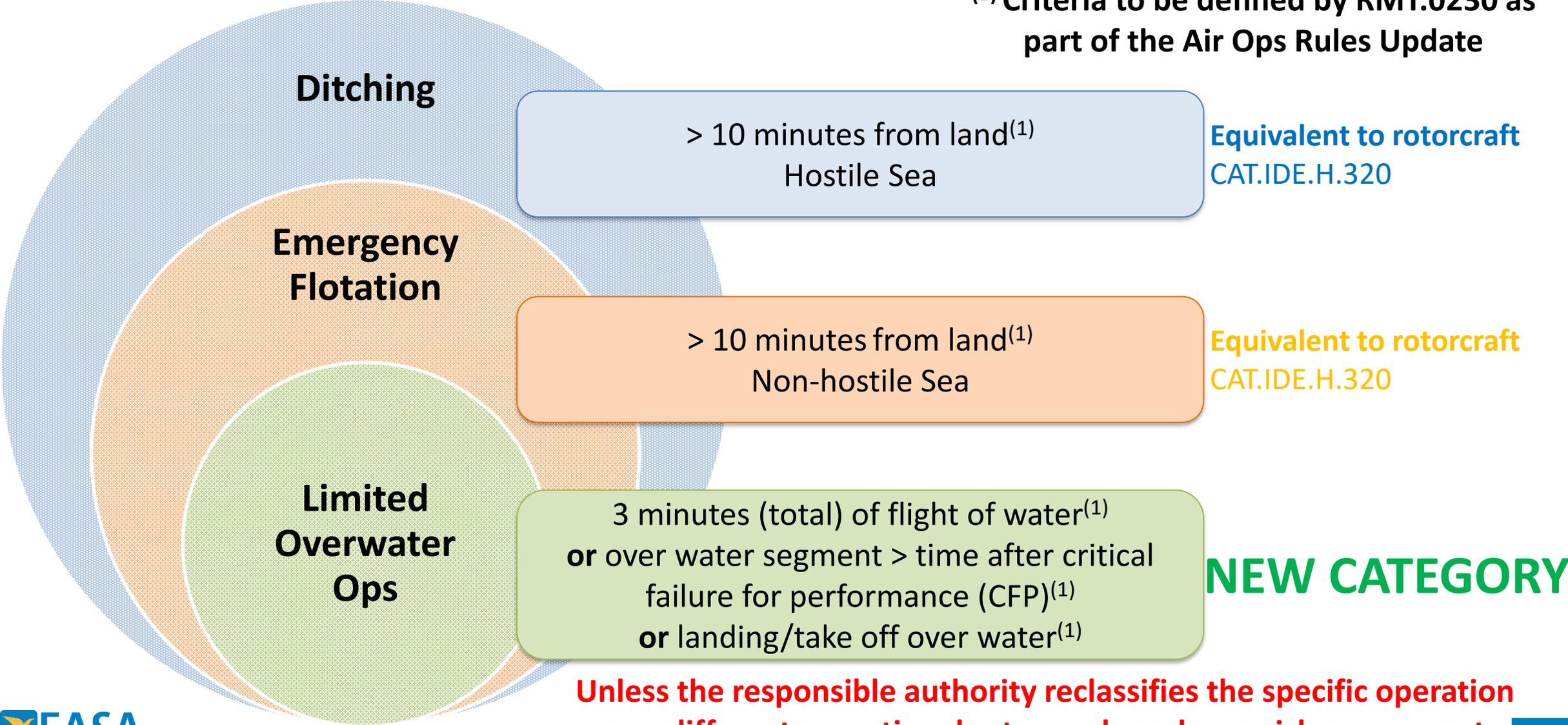
Note: Hostile Sea: open sea area north of 45 N and south of 45 S, unless any part is designated as non-hostile by the responsible authority of the State in which the operations take place, ref: Regulation (EU) 965/2012 on air operations, ANNEX I – Definitions (69)(b)(i)



NEW CATEGORY

Proposed OPS Rules for Airworthiness Categories

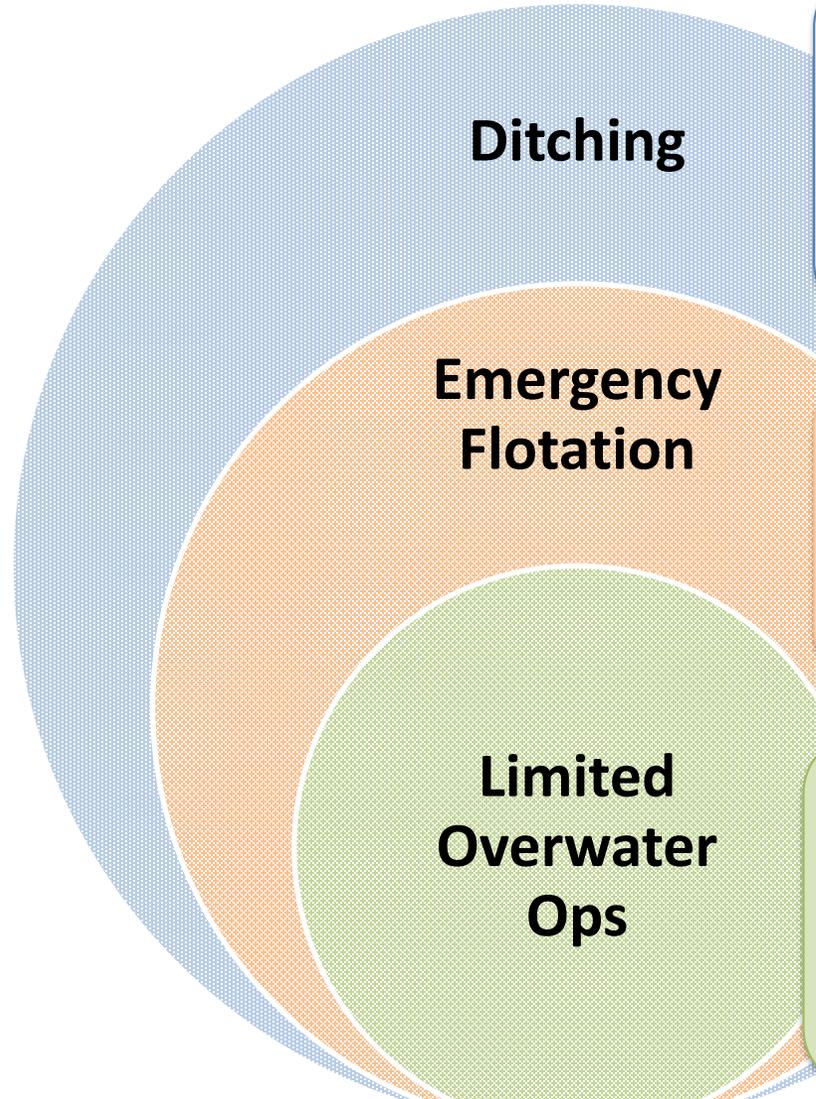
⁽¹⁾ Criteria to be defined by RMT.0230 as part of the Air Ops Rules Update



Unless the responsible authority reclassifies the specific operation as a different operational category based on a risk assessment

Phase: Water Entry

Ditching



Ditching

<u>Structural Provisions</u> ⁽¹⁾	CS27.563
• Applicable to whole aircraft up to sea state selected	
<u>Behaviour during ditching</u>	CS27.801(b), CS27.801(d)
• Minimise probability of injury, no unsafe characteristics	
<u>Water Impact</u>	CS27.801(c)(1)
• Design review of EFS / or buoyancy components	

Emergency Flotation

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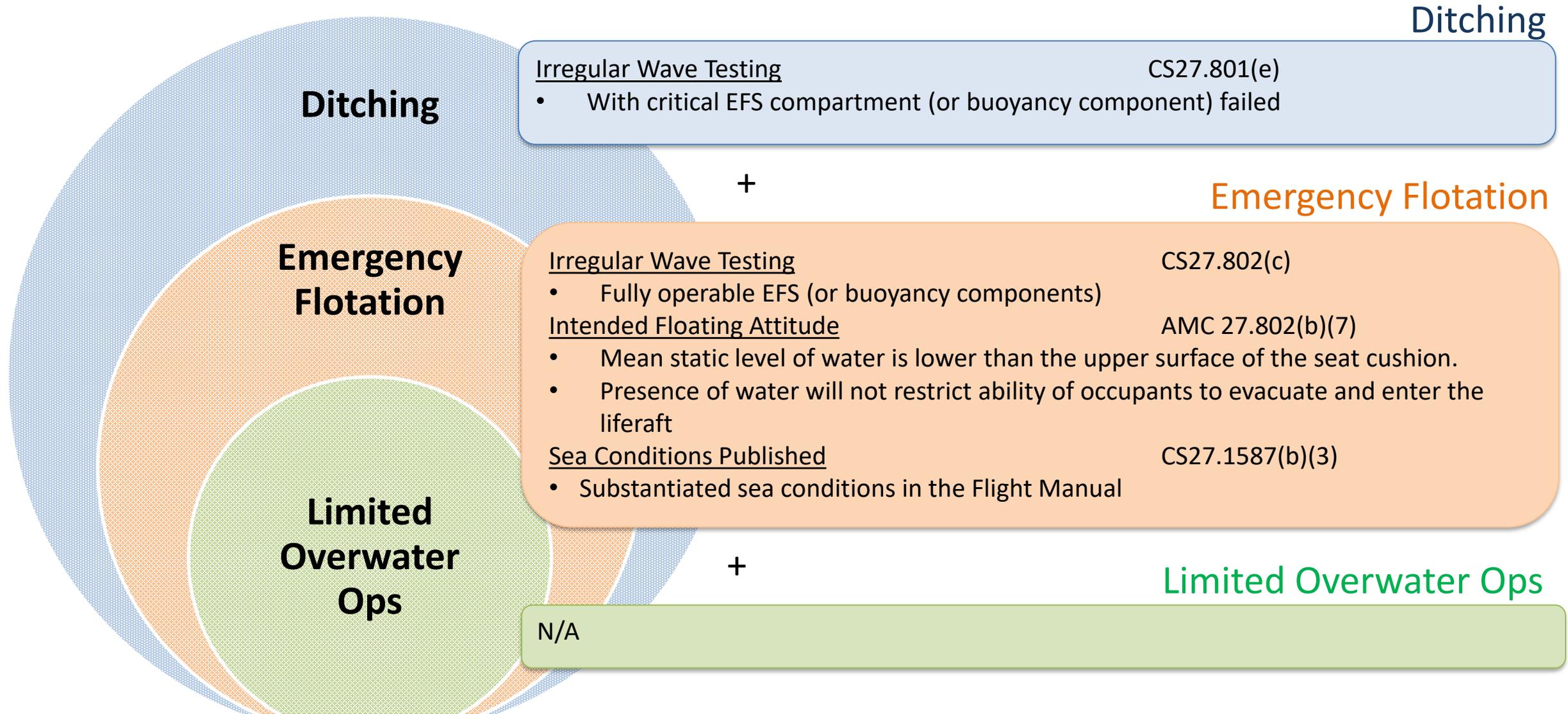
<u>Structural Provisions</u> ⁽¹⁾	CS27.563
• Applicable to EFS and attachments (or buoyancy components) up to sea state selected	
<u>Energy Storage</u>	VTOL.MOC.2430(a)(6)
• Specific Considerations paragraph (a)	

Limited Overwater Ops

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<u>Structural Provisions</u> ⁽¹⁾	CS27.563
• Applicable to EFS and attachments (or buoyancy components) in calm water	
<u>Energy Storage</u>	VTOL.MOC.2430(a)(6)
• Specific Considerations paragraph (b)	
<u>EFS Deployment</u> ⁽²⁾	CS29.801(c)(2) (CS27 Cat A)
• Must not rely on pilot action in flight (auto-arm and auto-deploy)	

Phase: Capsize Resistance



Ditching

Irregular Wave Testing

CS27.801(e)

- With critical EFS compartment (or buoyancy component) failed

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Emergency Flotation

Irregular Wave Testing

CS27.802(c)

- Fully operable EFS (or buoyancy components)

Intended Floating Attitude

AMC 27.802(b)(7)

- Mean static level of water is lower than the upper surface of the seat cushion.
- Presence of water will not restrict ability of occupants to evacuate and enter the liferaft

Sea Conditions Published

CS27.1587(b)(3)

- Substantiated sea conditions in the Flight Manual

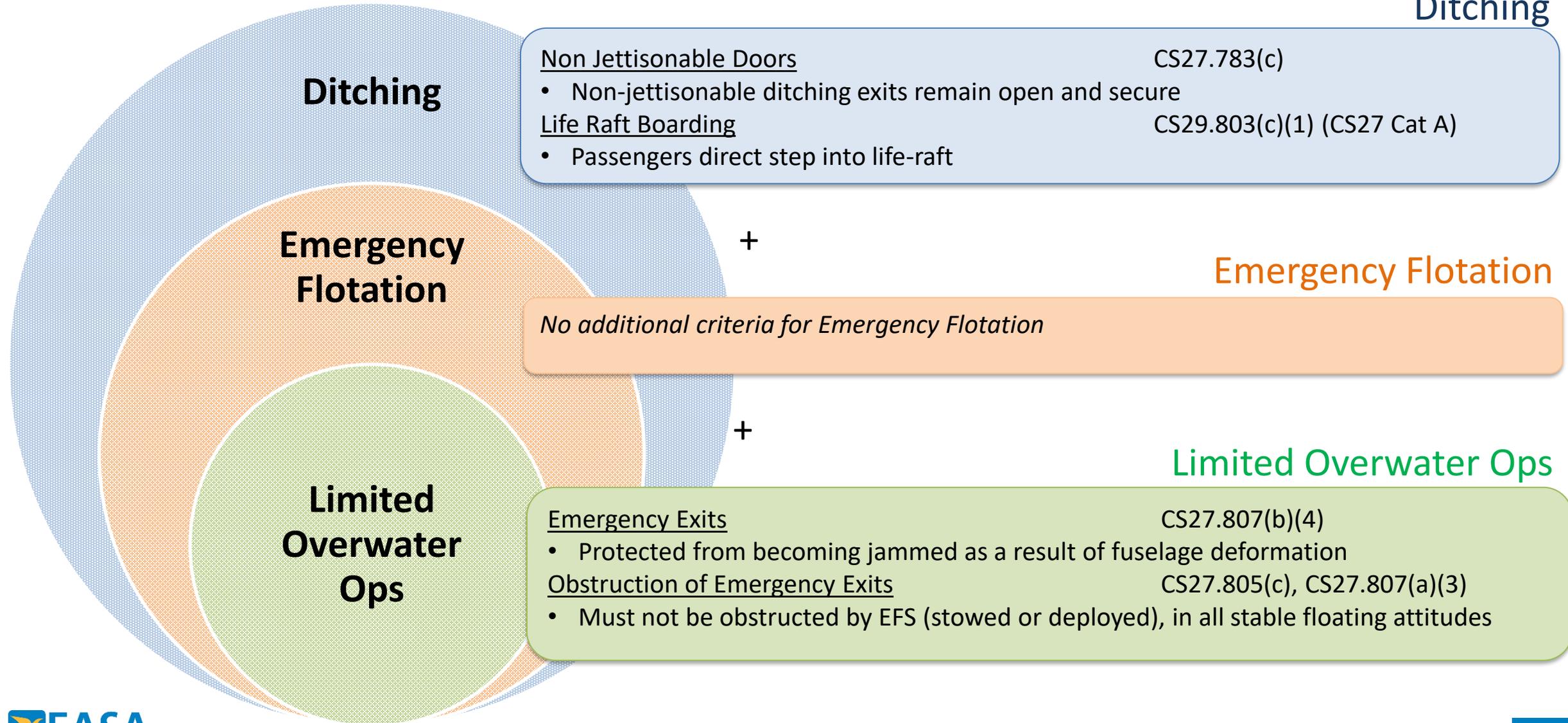
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Limited Overwater Ops

N/A

Phase: Egress above water

Ditching



Non Jettisonable Doors

CS27.783(c)

- Non-jettisonable ditching exits remain open and secure

Life Raft Boarding

CS29.803(c)(1) (CS27 Cat A)

- Passengers direct step into life-raft

Ditching

Emergency Flotation

Emergency Flotation

No additional criteria for Emergency Flotation

Limited Overwater Ops

Limited Overwater Ops

Emergency Exits

CS27.807(b)(4)

- Protected from becoming jammed as a result of fuselage deformation

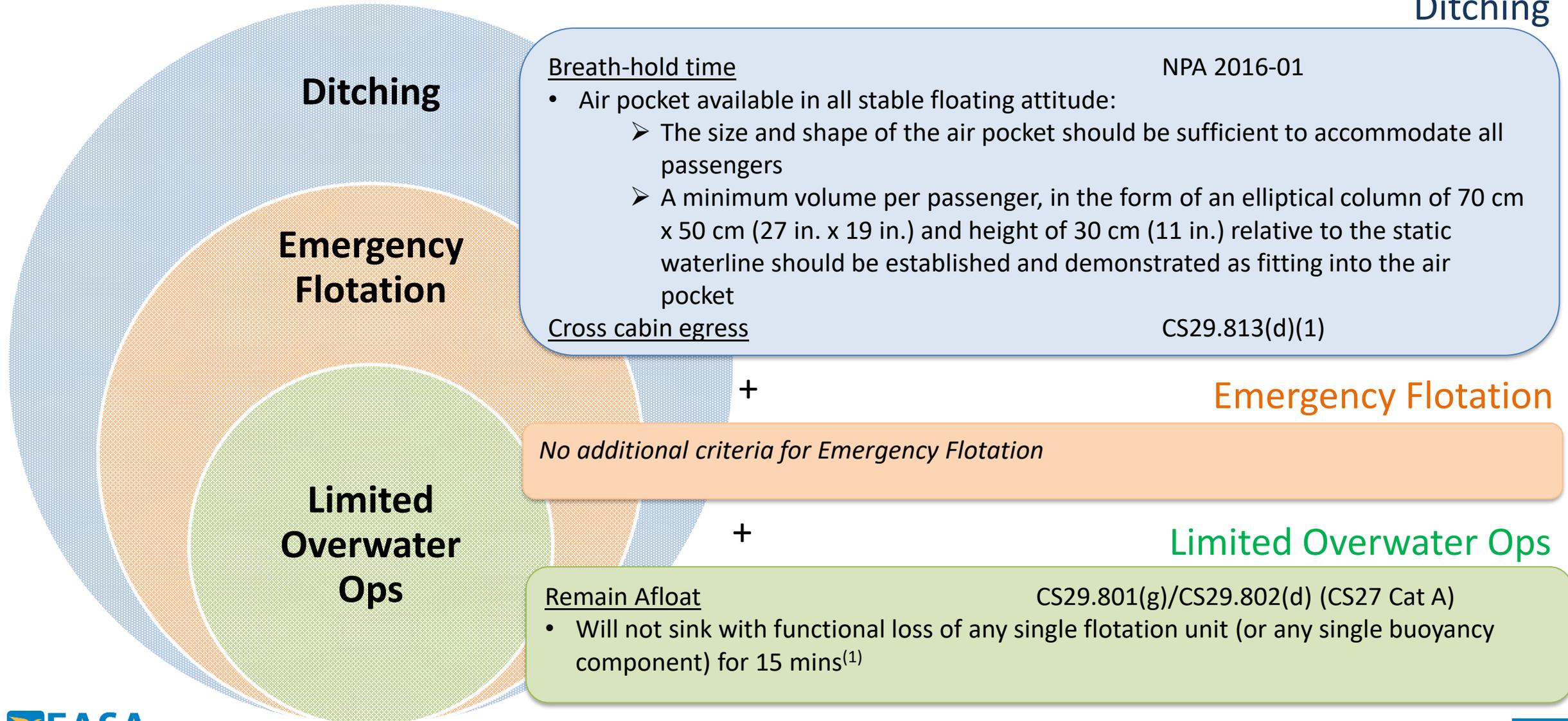
Obstruction of Emergency Exits

CS27.805(c), CS27.807(a)(3)

- Must not be obstructed by EFS (stowed or deployed), in all stable floating attitudes

Phase: Underwater Egress (1/2)

Ditching



Ditching

Breath-hold time NPA 2016-01

- Air pocket available in all stable floating attitude:
 - The size and shape of the air pocket should be sufficient to accommodate all passengers
 - A minimum volume per passenger, in the form of an elliptical column of 70 cm x 50 cm (27 in. x 19 in.) and height of 30 cm (11 in.) relative to the static waterline should be established and demonstrated as fitting into the air pocket

Cross cabin egress CS29.813(d)(1)

Emergency Flotation

No additional criteria for Emergency Flotation

Limited Overwater Ops

Remain Afloat CS29.801(g)/CS29.802(d) (CS27 Cat A)

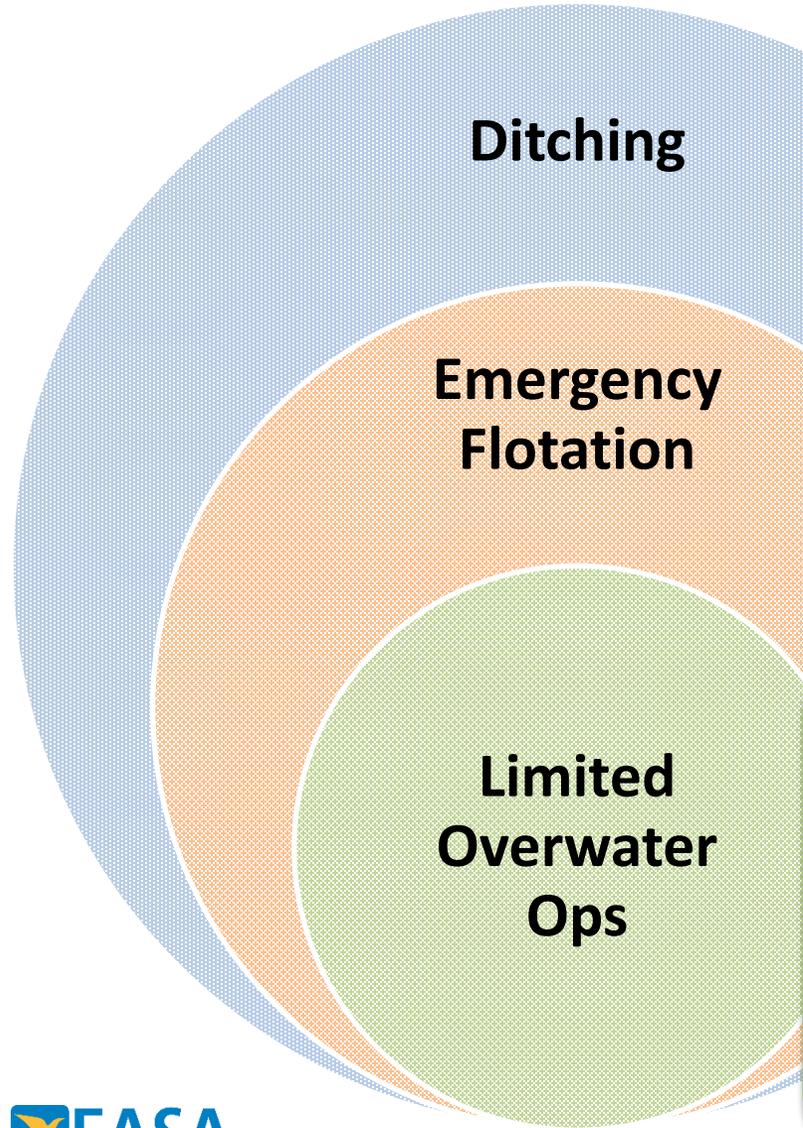
- Will not sink with functional loss of any single flotation unit (or any single buoyancy component) for 15 mins⁽¹⁾

(1) 15 minutes is consistent with the energy source criteria VTOL.MOC.2430(a)(6)

Phase: Underwater Egress (2/2)

Category Enhanced

Ditching



Underwater exits (no credit for overwater exits when afloat)

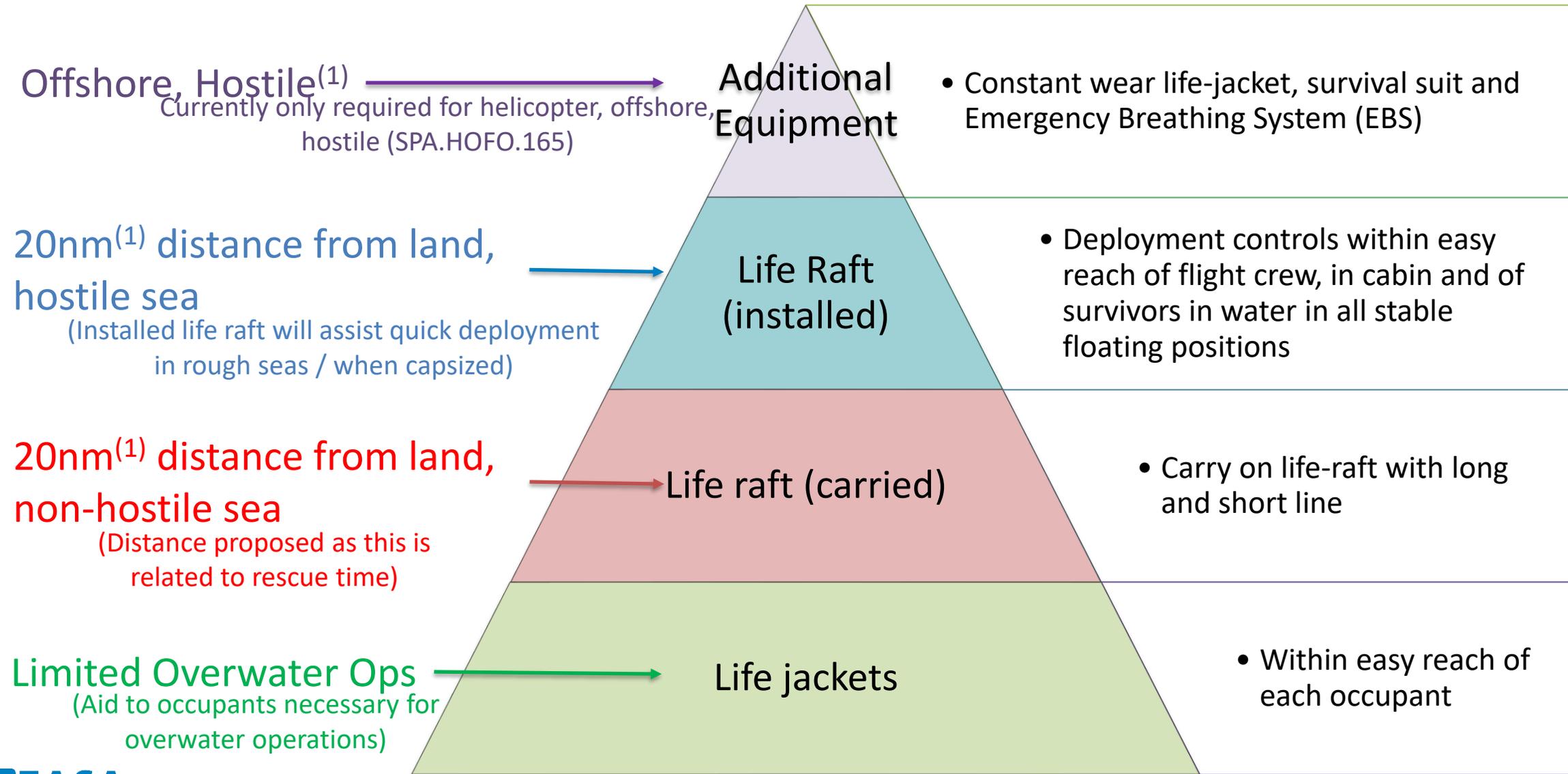
<u>Flight Crew Underwater Emergency Exits</u>	CS27.805(c)
* Rapid escape (50lbs)	
<u>Passenger Underwater Emergency Exits</u>	CS27.807(d)
* Rapid escape (50lbs)	* Min size on each side for 4 passengers
* Location facilitates escape	* Designed for flooded cabin
<u>Exits not blocked by open door</u> CS29.809(j)(2)	<u>HEEL</u> CS29.811(h)(1) (CS27 Cat A)

No additional criteria for Emergency Flotation

Limited Overwater Ops

<u>Flight Crew Underwater Emergency Exits</u>	CS27.805(c)
• If an insufficient number of overwater exits are available in any stable floating position, additional underwater exits must meet:	
* Operable underwater	* Controls accessible
* Black and yellow marking	* Markings remain visible if submerged
<u>Passenger Underwater Emergency Exits</u>	CS27.807(d)
• If an insufficient number of overwater exits are available in any stable floating position, additional underwater exits must meet:	
* Operable underwater	* Black and yellow marking
* Adjacent handholds	* Markings remain visible if submerged

Safety Equipment for Overwater Ops



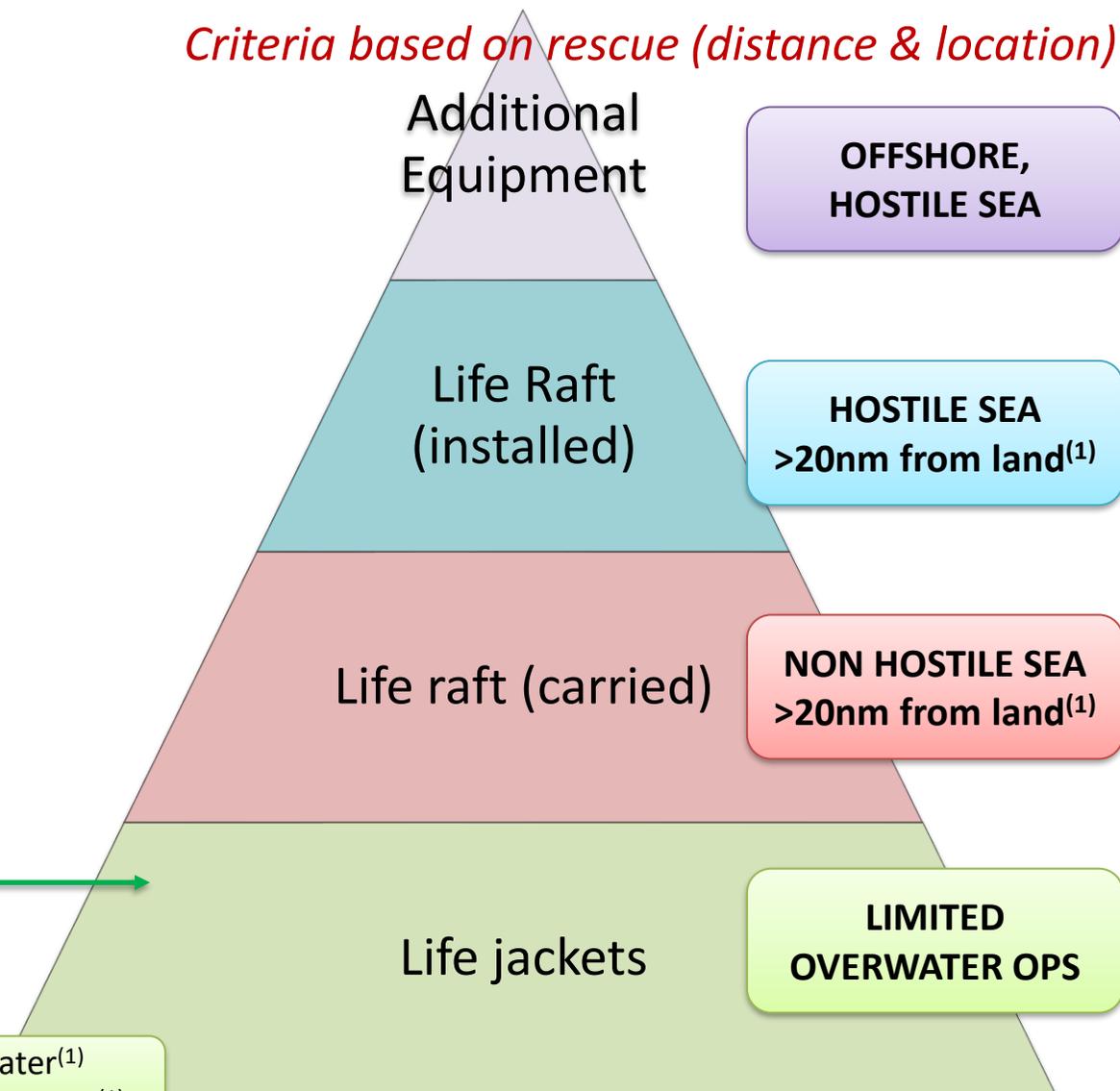
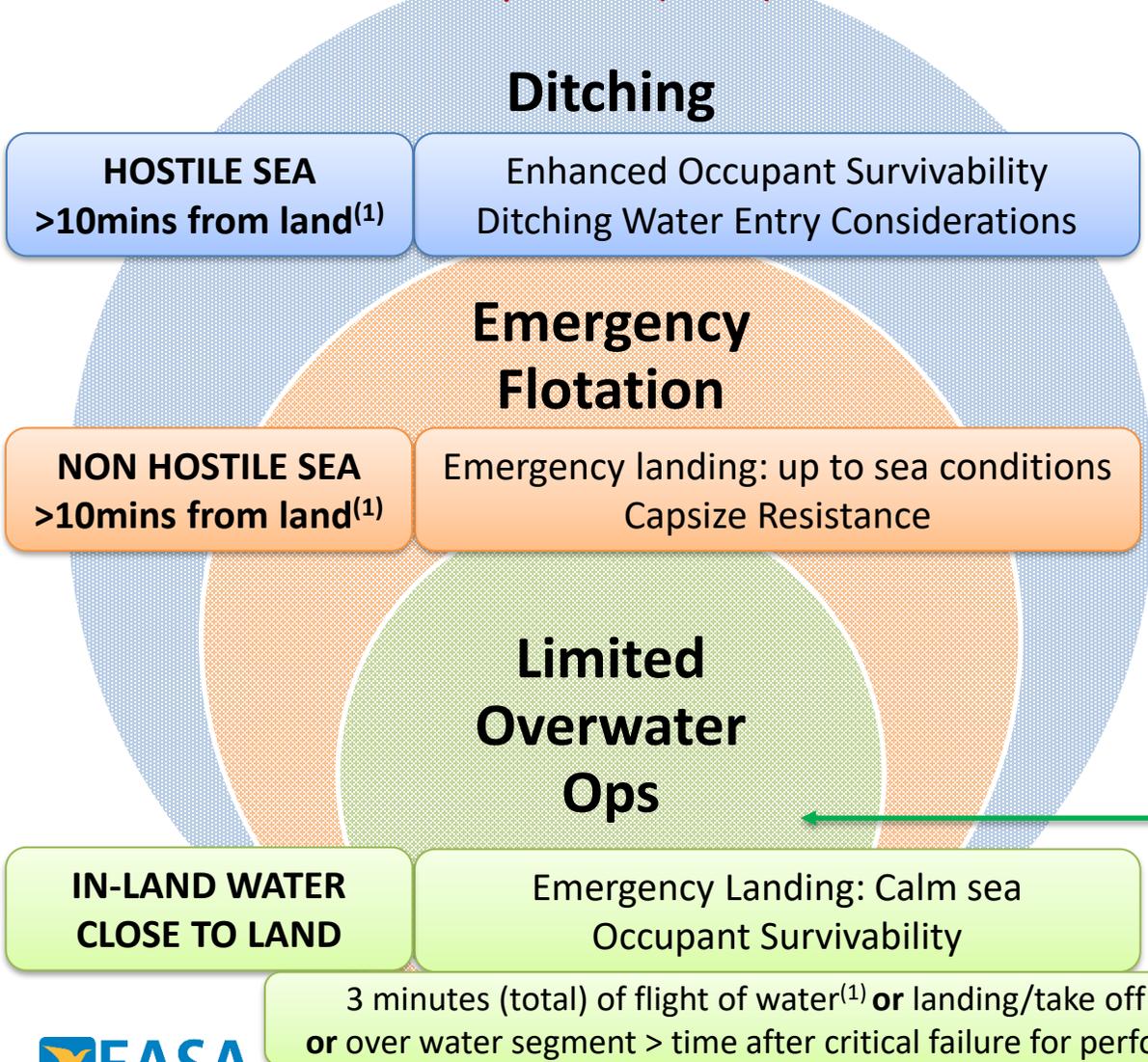
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Summary

Category Enhanced

Criteria based on risk exposure (time)

Criteria based on rescue (distance & location)



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Thank you for your attention

Feel free to submit your questions on our live event platform....

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