



Directive 2009/45/EC on safety standards and on safety rules and standards for passenger ships

S. Encabo EMSA, L. Benedetti DG MOVE

Main Findings and Proposed follow-up



Contents

1. General Overview
2. Data Analysis
3. Traditional Ships
4. High Speed Craft
5. Offshore Service Vessels for Wind-Farms
6. Definition of Sea Areas for non-HSC
7. Exemptions and equivalencies
8. Update of the technical Annex
9. Conclusions



Objectives of the Directive

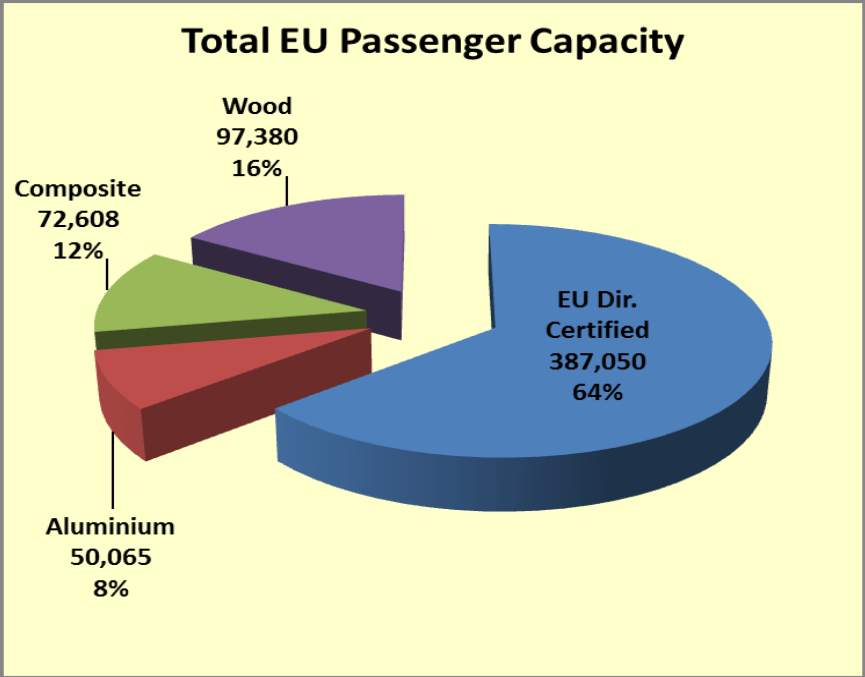
1. to introduce a **uniform level of safety** of life and property on new and existing passenger ships and high-speed passenger craft, when both categories of ships and craft are engaged on domestic voyages, and
2. to facilitate the creation of an **internal market**.

Case Studies Questionnaire

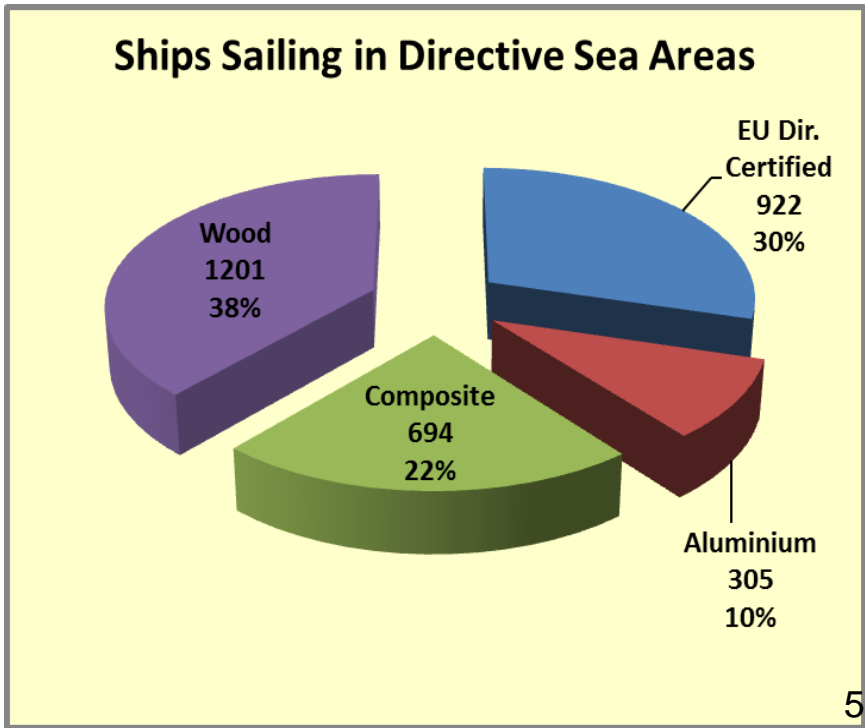
Overall, 17 MS answered:

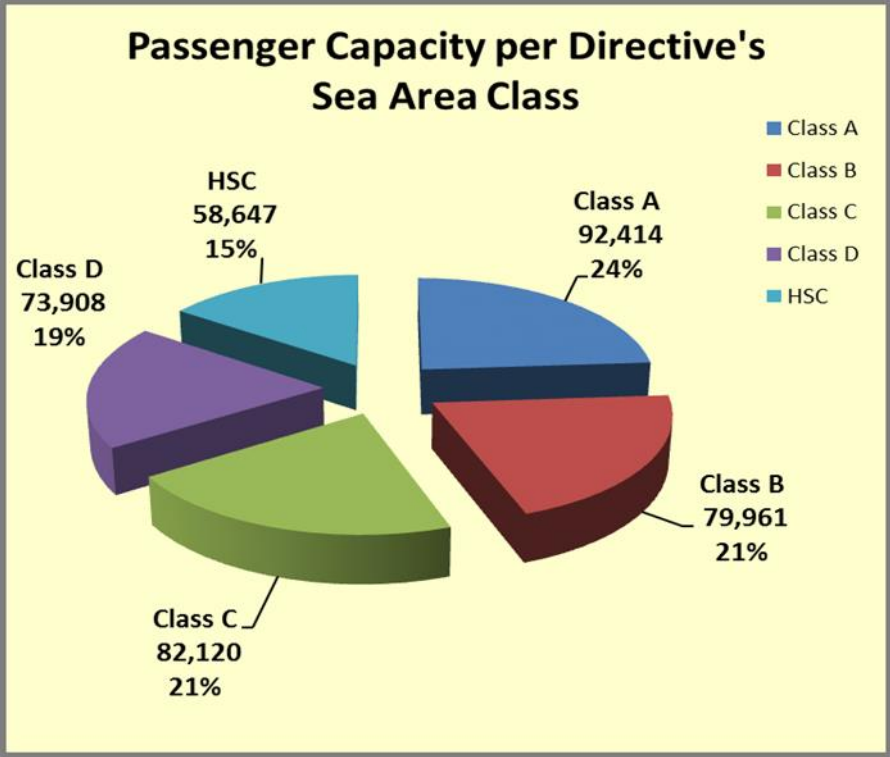
These 17 MS represent:

- **90% of the fleet in terms of ships**
- **91% in terms of passenger capacity**
- **Not all MS replied to all questions**

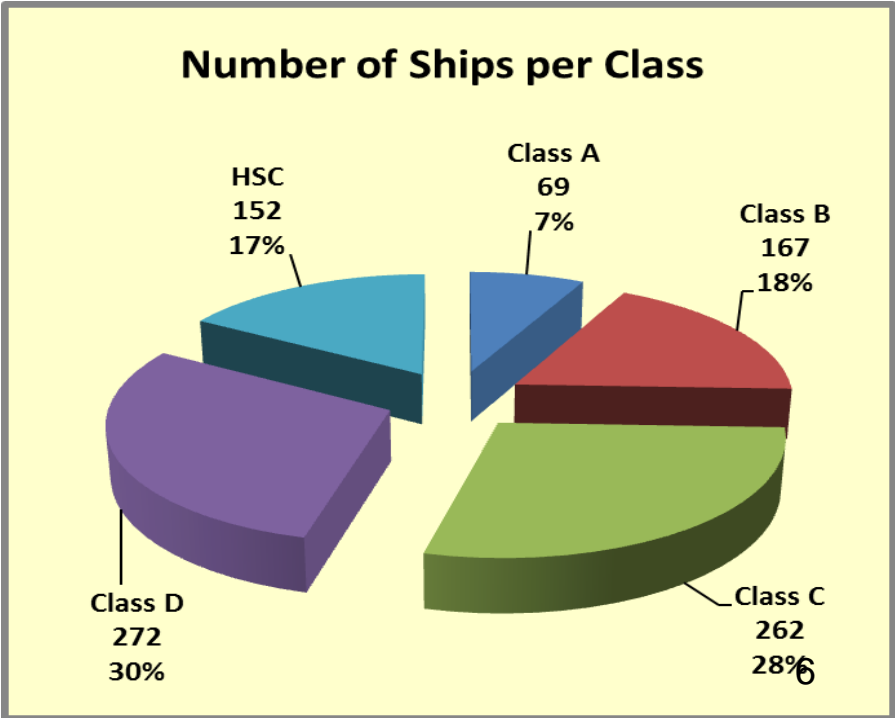


DOMESTIC FLEET PROFILE



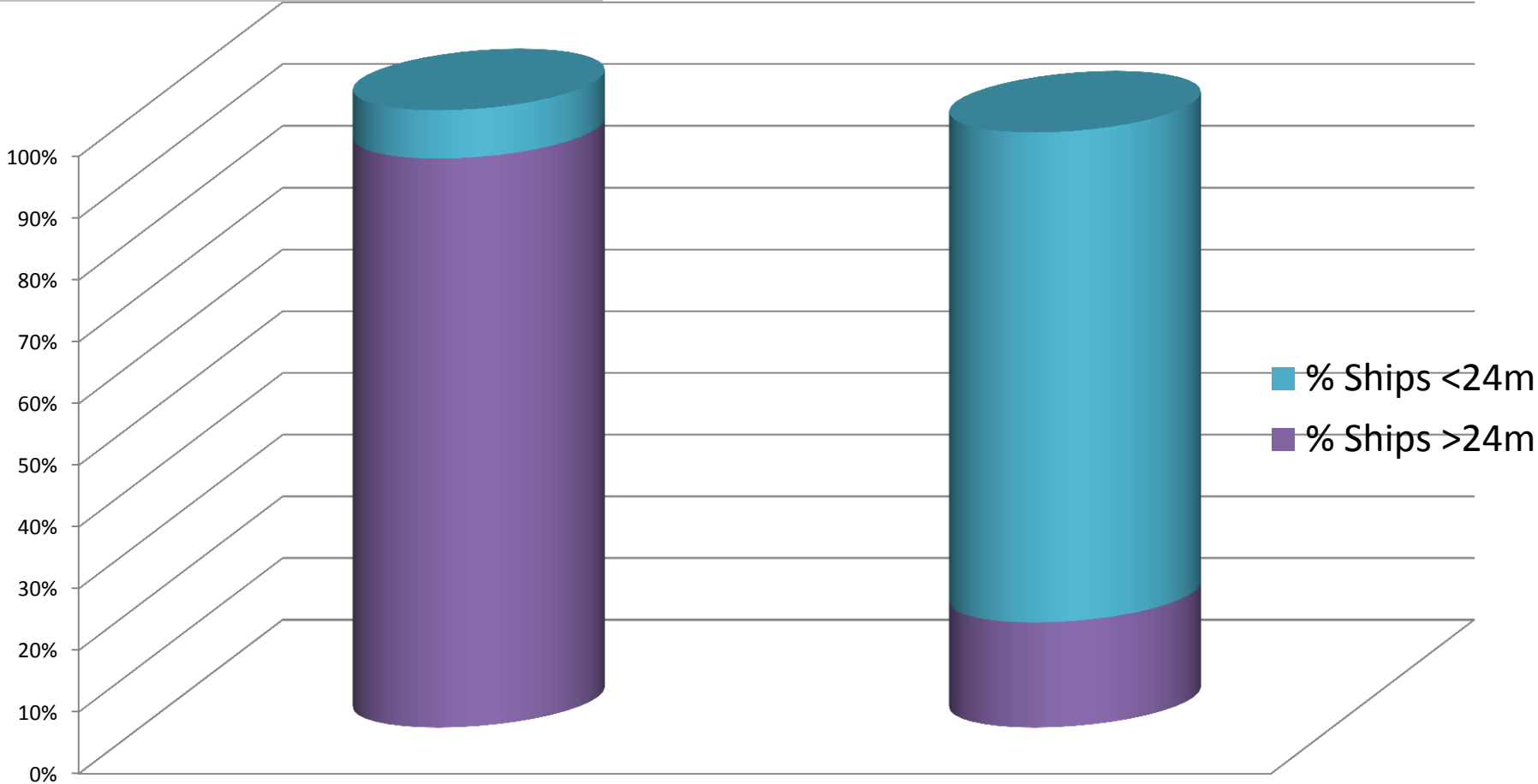


DIRECTIVE SHIPS PROFILE





Size of Ships by Number



EU Directive Certified

Ships outside the Directive (Aluminium, Composite, Wood)





Accidents involving Domestic Passenger Ships



EMCIP – Accidents reported

	Number Accidents	Individual Ships having accidents	No. ships > 1 accident	No. Ships > 2 accidents	No. Ships > 3 accidents	No. Ships > 5 accidents
EMCIP (last 4 years)	408	223	94	43	27	9
MARINFO (last 5 years)	544	256	113	66	42	17

EMCIP – Accidents reported

	Class A	Class B	Class C	Class D	HSC	TOTAL
Number of Accidents	40	172	78	77	41	408
Percentage	10%	42%	19%	19%	10%	
Individual Ships	20	71	54	52	26	223
Percentage of fleet	29%	43%	21%	19%	17%	24%

Notes: 76% of Accidents in Ro-Ro Passenger ships
Comparable figures in MARINFO

Characterisation of Accidents

	Class A	Class B	Class C	Class D	HSC	All Domestic	All Pass. Ships
Occupational	17 (42%)	82 (48%)	24 (31%)	12 (16%)	11 (27%)	146 (36%)	≈35%
Casualty with ship	23 (58%)	90 (52%)	54 (69%)	65 (84%)	30 (73%)	262 (64%)	≈65%
Injured	18 (1 pax)	93 (19 pax)	27 (4 pax)	14 (3 pax)	13 (3 pax)	165 (141 in occupational) -2 every 5 accidents	1 every 2 accidents
Deaths	0	4 (1 pax)	0	0	0	4 (1 every 100 acc.)	1 every 27 accidents (1 per 68 without CC)
Less serious/ Incident	32 (80%)	152 (88%)	73 (94%)	64 (83%)	32 (78%)	353 (87%)	78-81%
Serious/ Very Serious	8 (20%)	20 (12%)	5 (6%)	13 (17%)	9 (22%)	55 (13%)	19-22%



EMCIP – Accidents reported

ACCIDENTS SHIPS <24m

Accidents Recorded - ships <24m under Directive only:

- EMCIP (last 4 years): 1 ship out of 74 certified under Directive \approx 1,5%

whereas they represent 8% of the fleet

Accidents Recorded : EMCIP - domestic ships <24m outside Directive

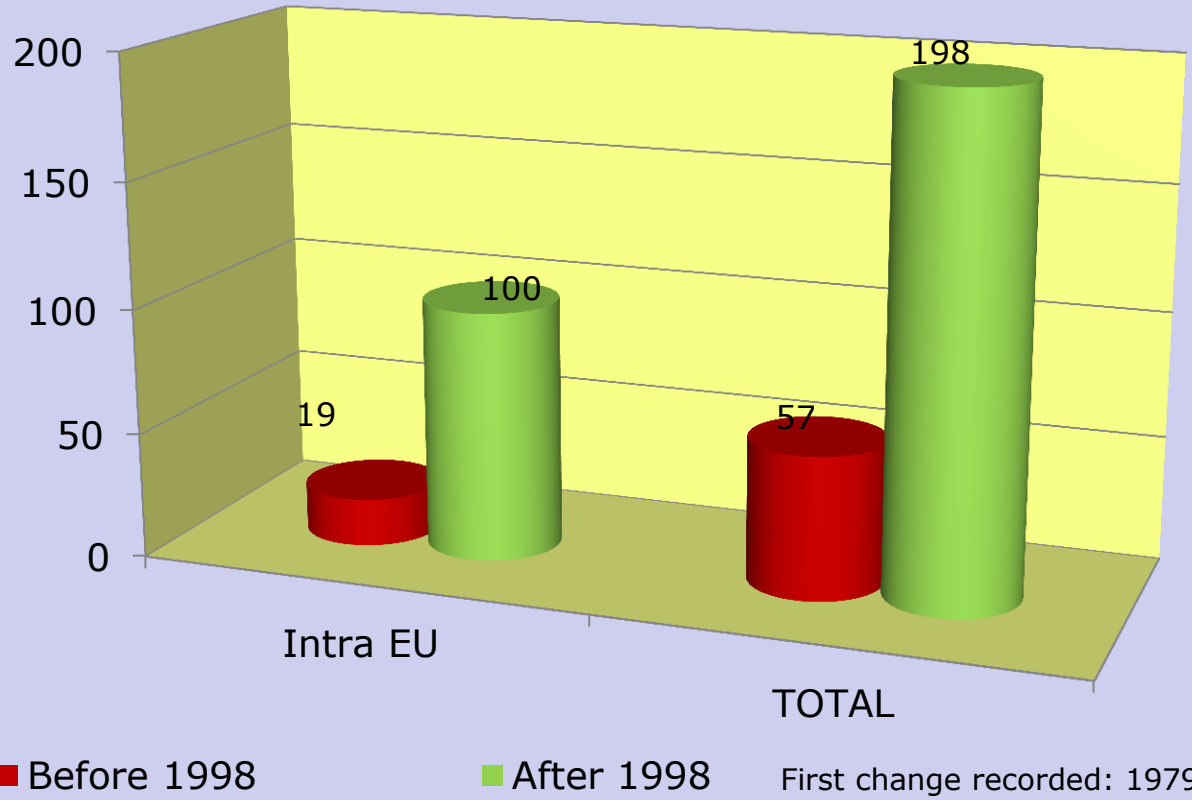
*145 ships out of 1746 certified outside Directive had an accident \approx 8% -
134 injured (93 pax), 5 deaths occupational accidents*

- ✓ 29 aluminium – 13%
- ✓ 67 composite – 11%
- ✓ 38 wood – 4%



Internal Market

Flag Changes





Data Analysis

Aluminium

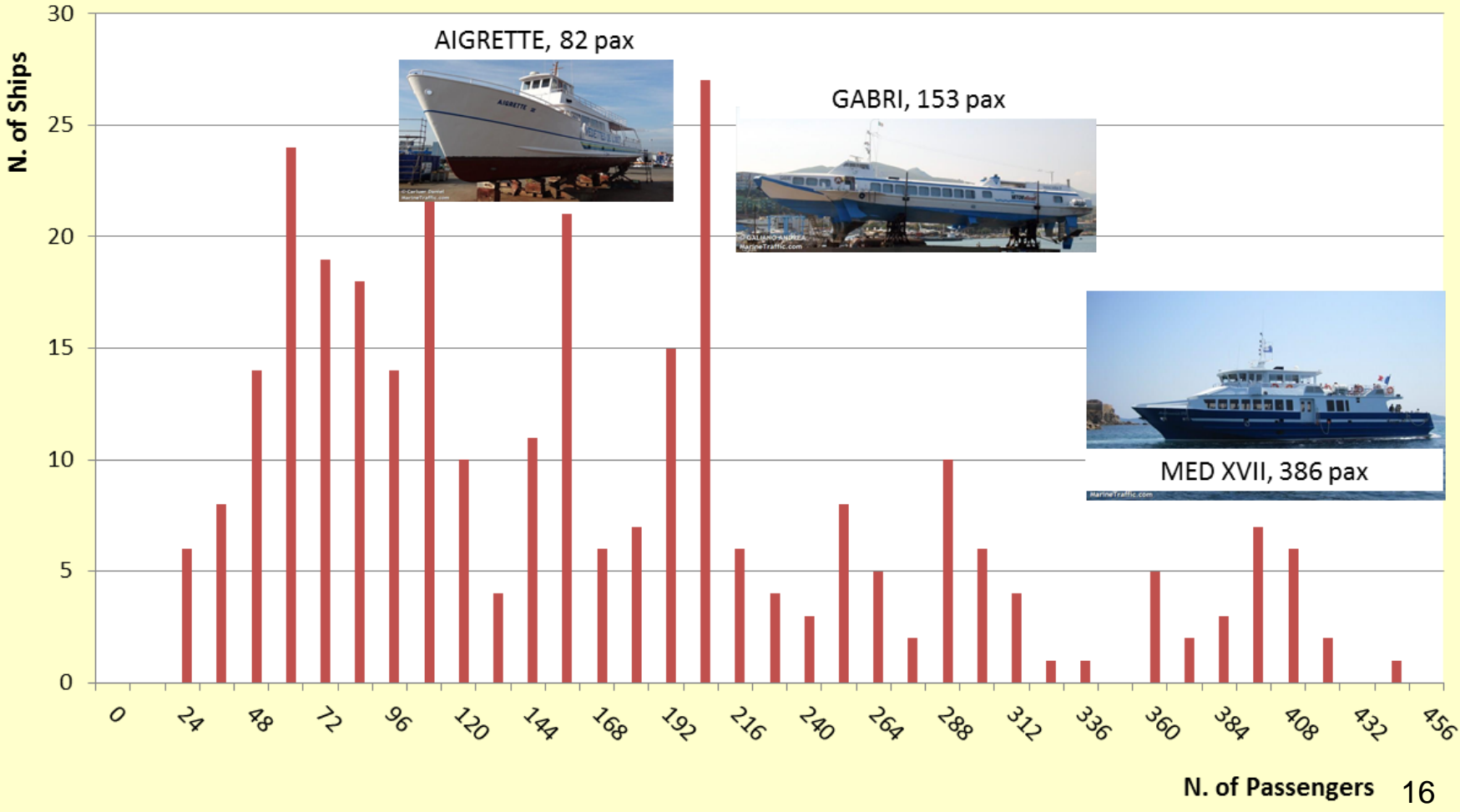
SOLAS - Ch.II-2 Reg.2 indicates that:

Steel or other equivalent material. Where the words 'steel or other equivalent material' occur, 'equivalent material' means any non-combustible material which, by itself or due to insulation provided, has structural and integrity properties equivalent to steel at the end of the applicable exposure to the standard fire test (e.g. aluminium alloy with appropriate insulation).

Material: Aluminium

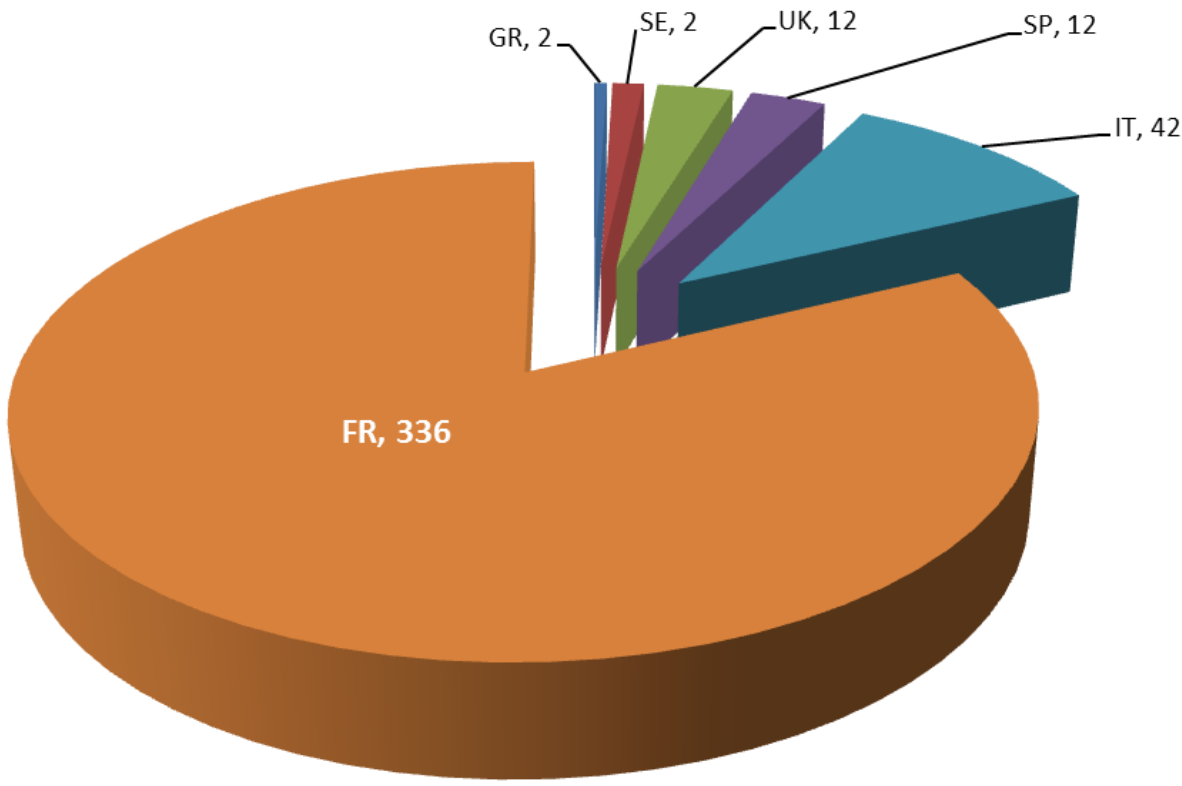


Aluminium Ships distribution by Number of Passengers (EU waters)



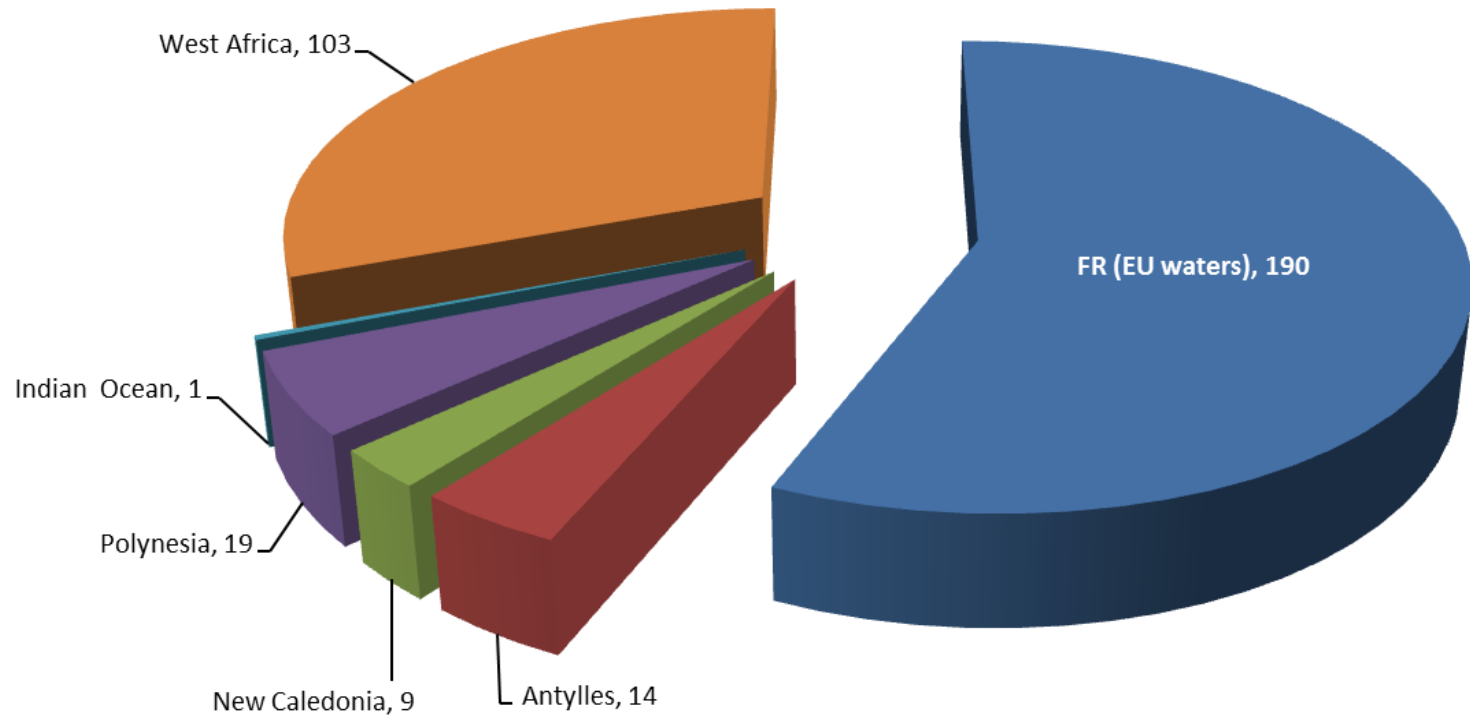


Number of Aluminium Ship NOT Under the Directive
Total 409 ships

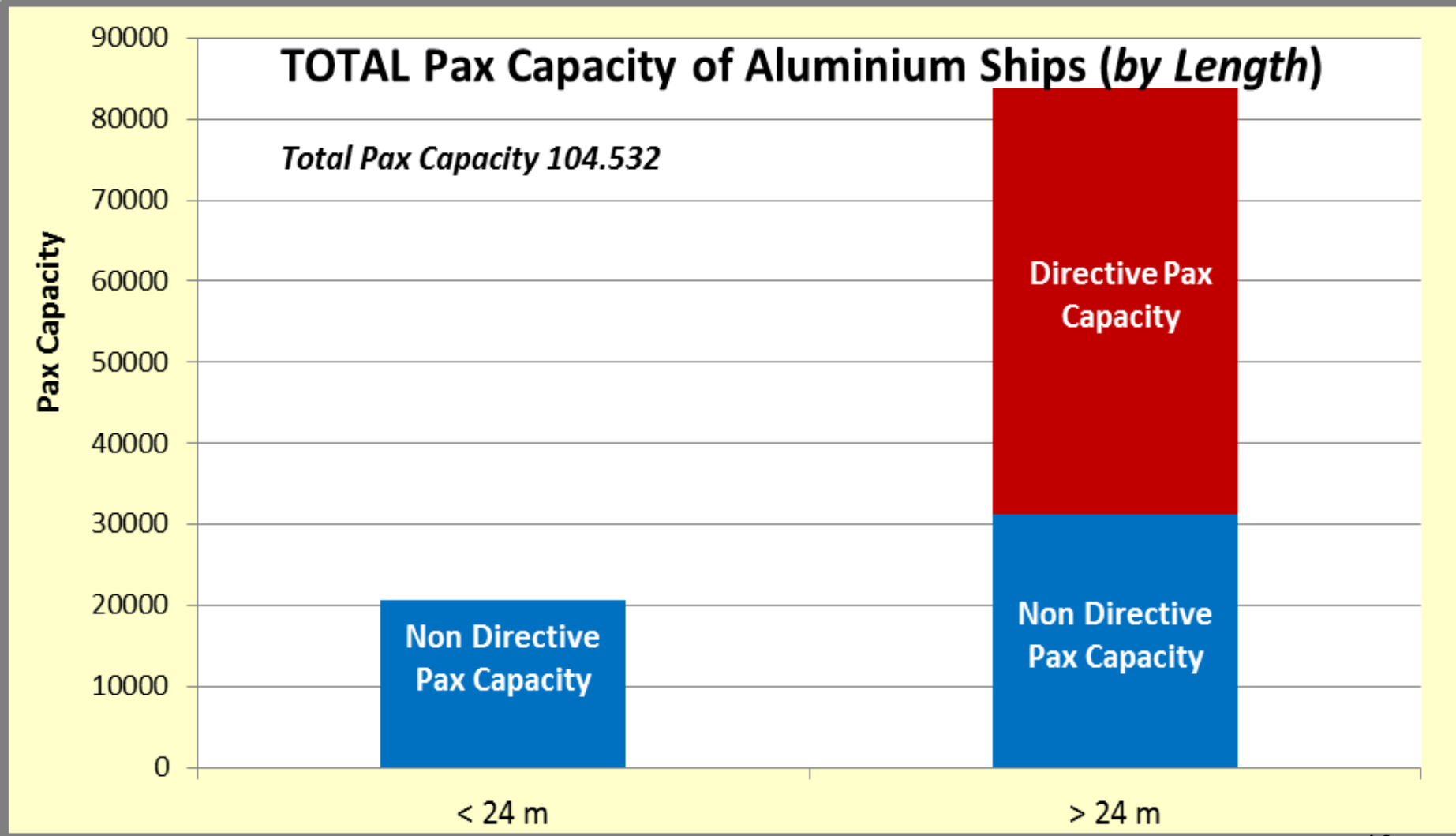




Number of Aluminium Ship NOT Under the Directive
Detailed breakdown for FRANCE

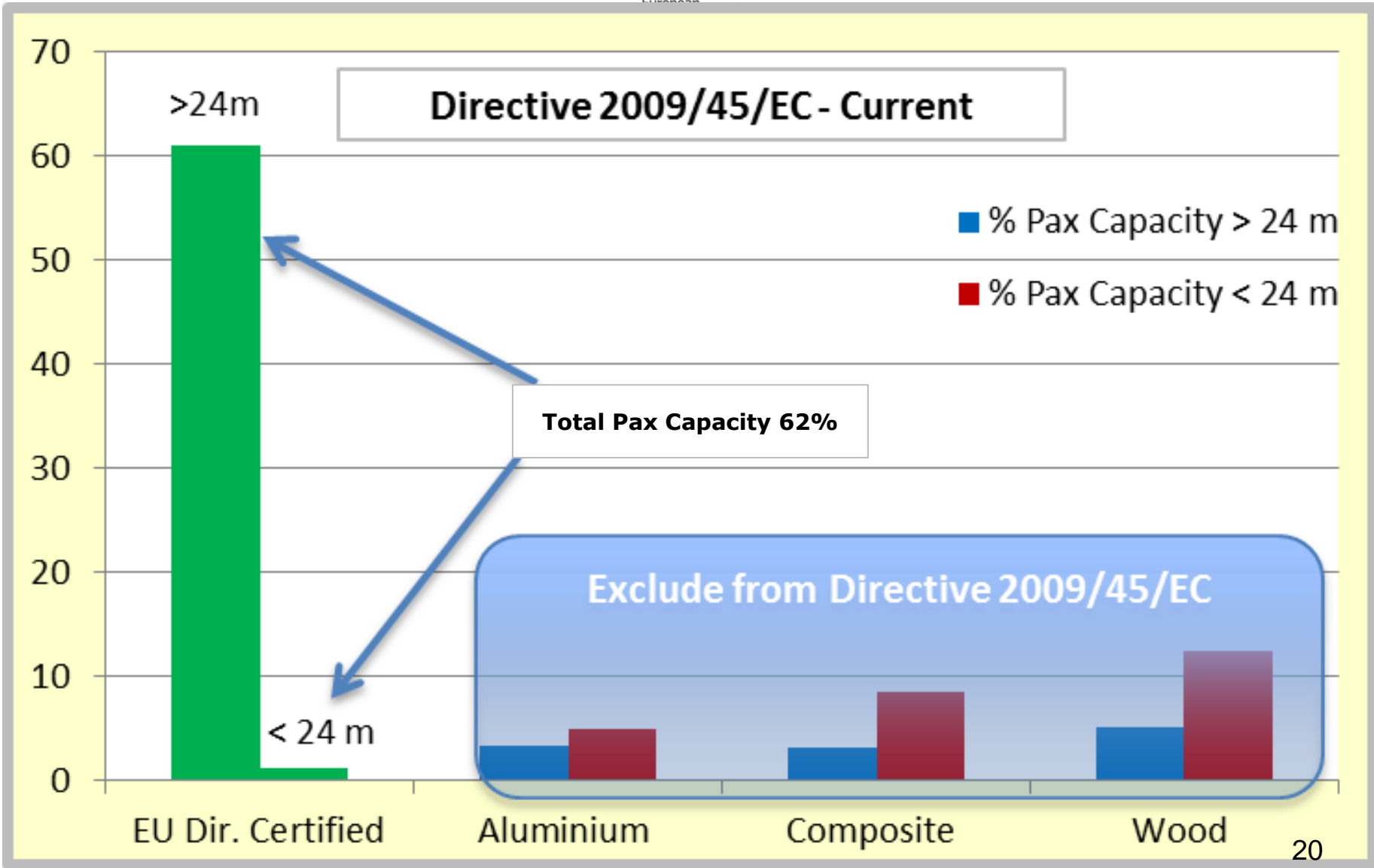


Material: Aluminium

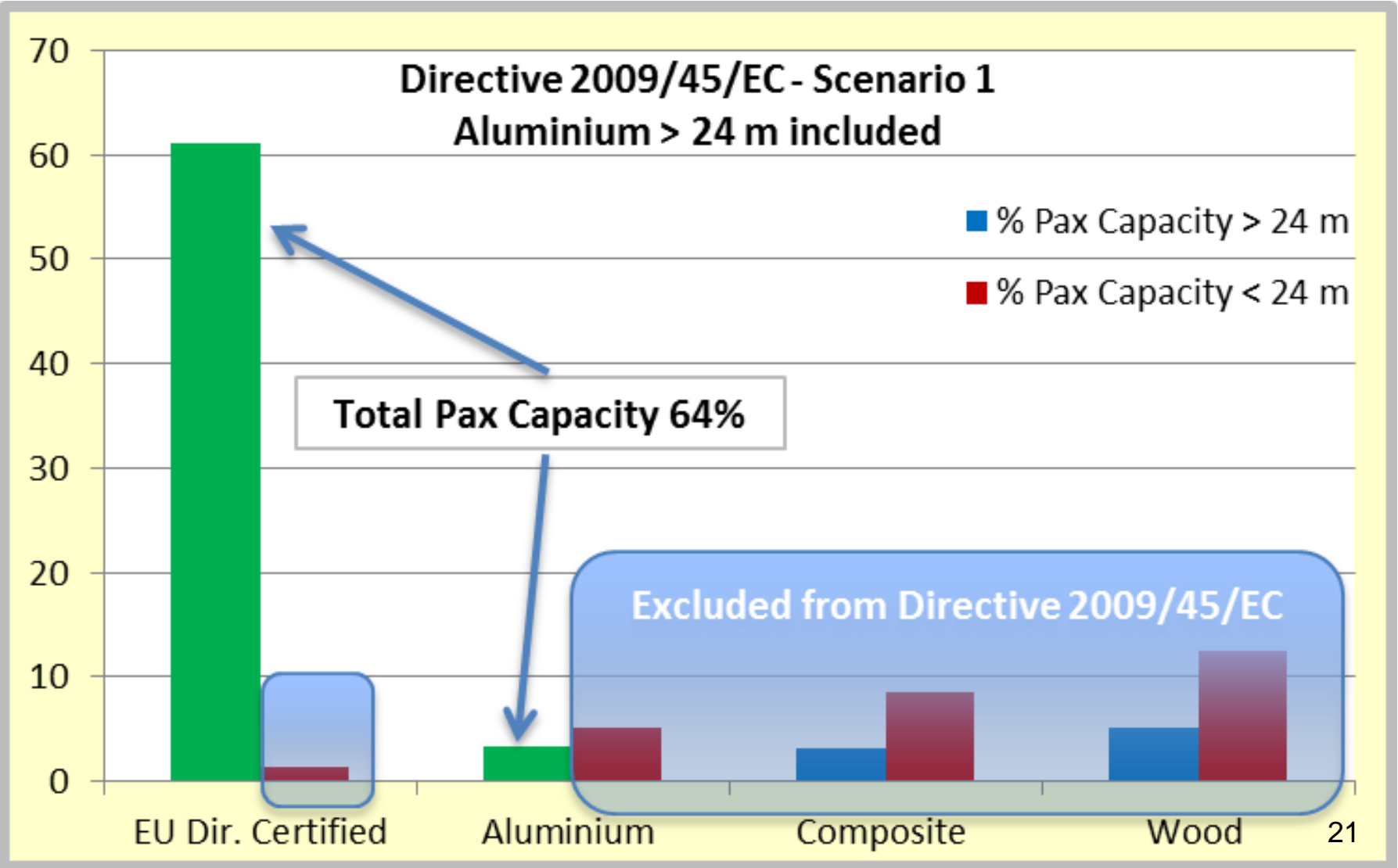




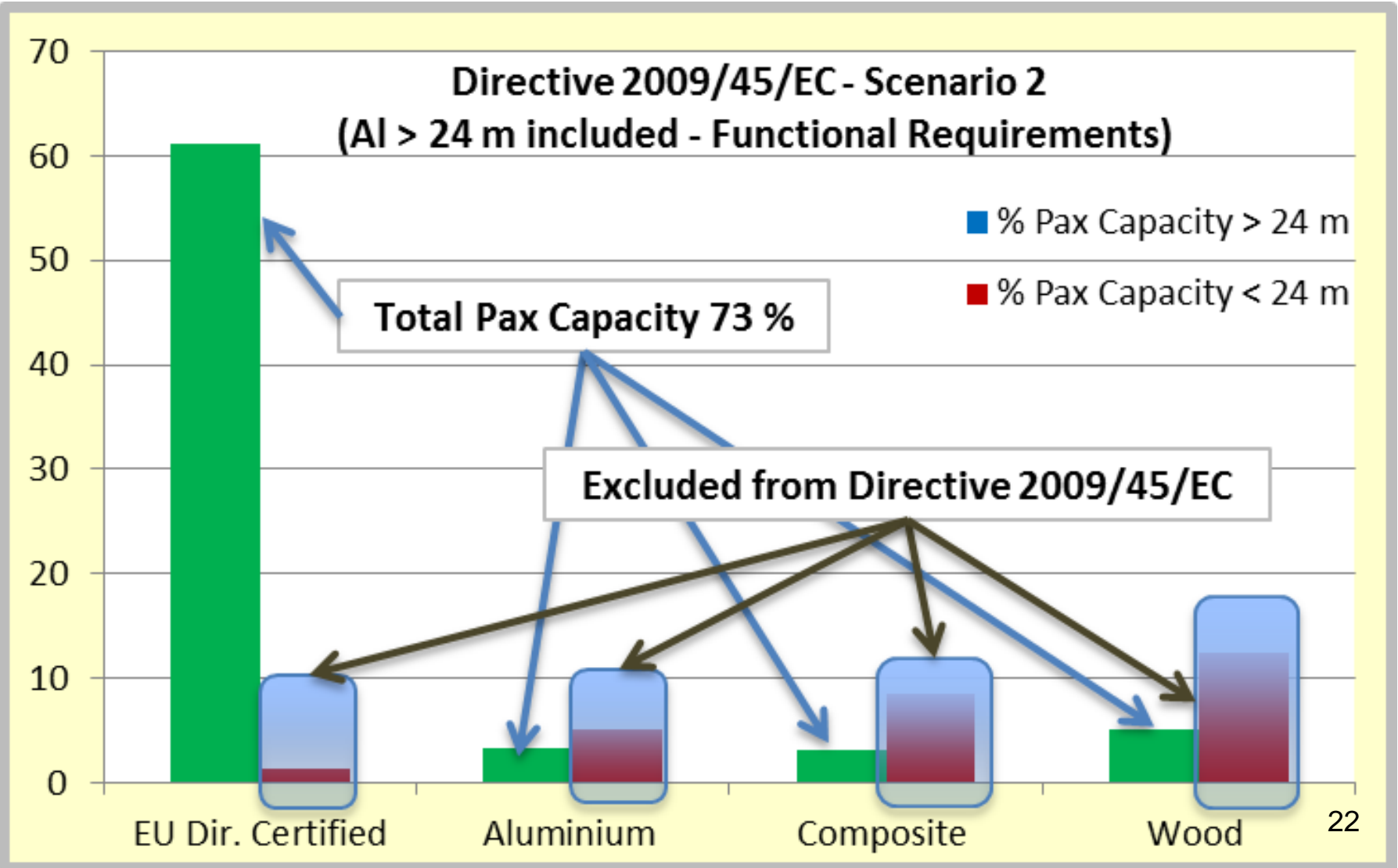
Material: Aluminium



Material: Aluminium

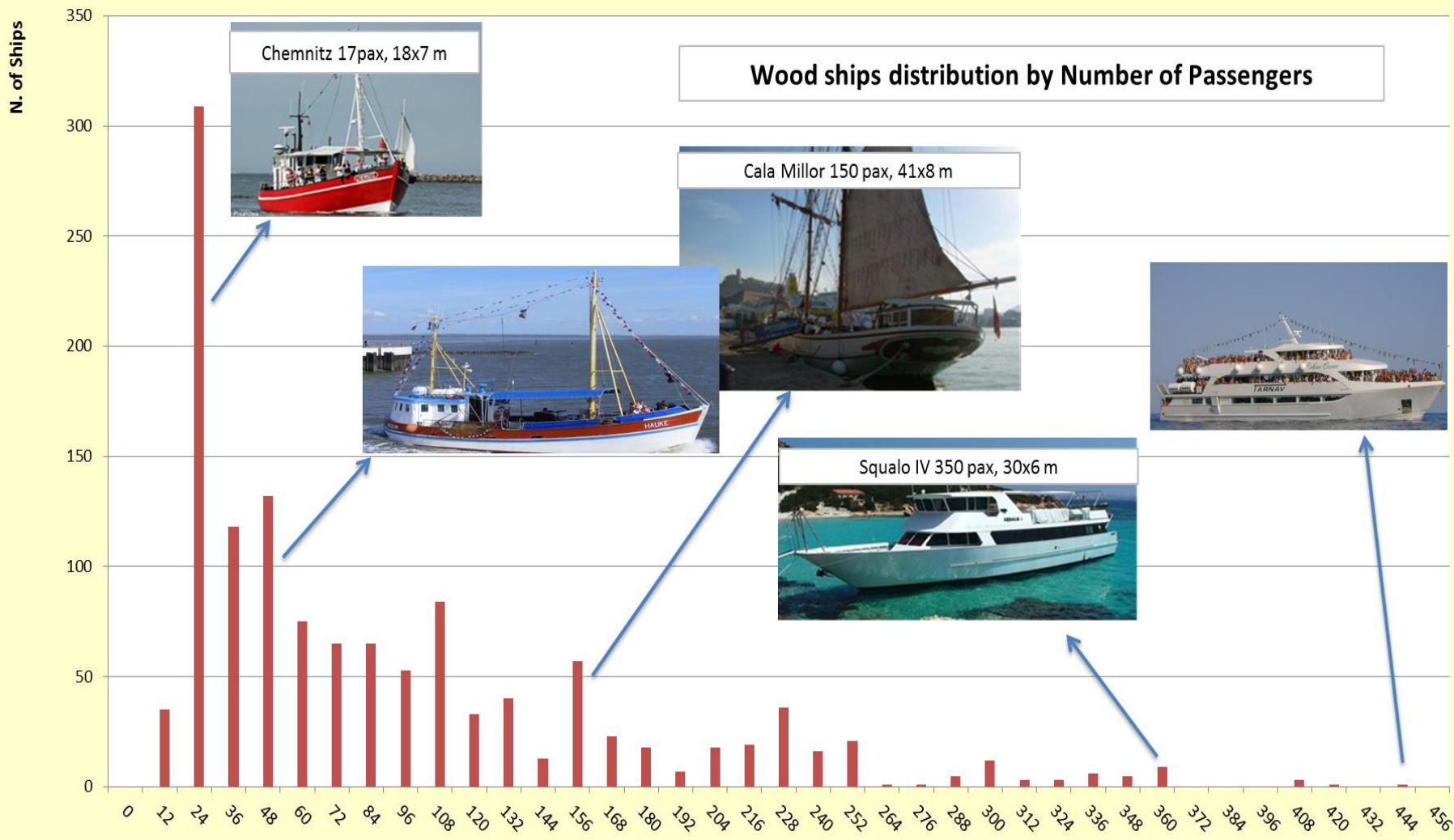


Material: Aluminium



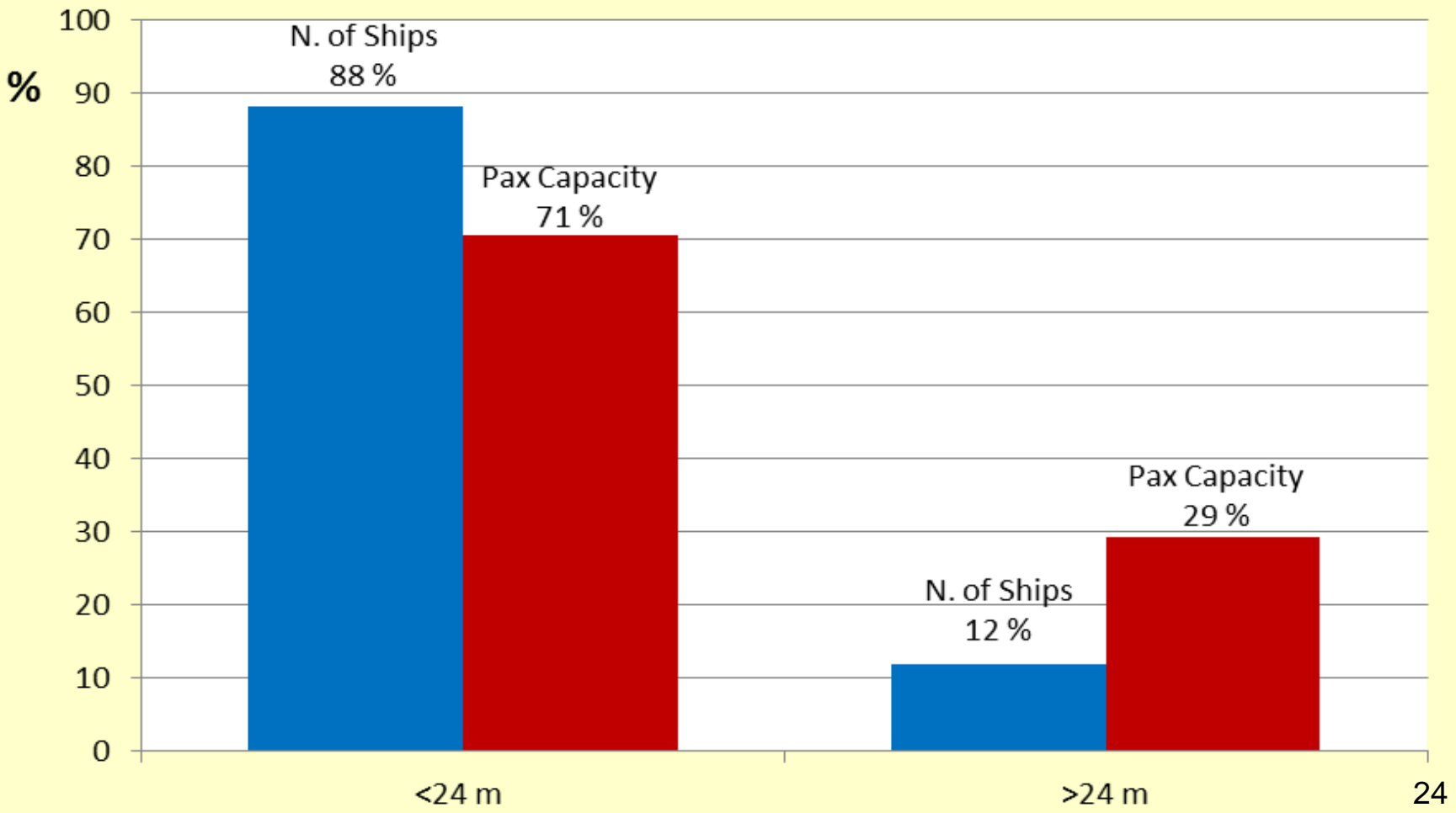


Wood ships distribution by Number of Passengers



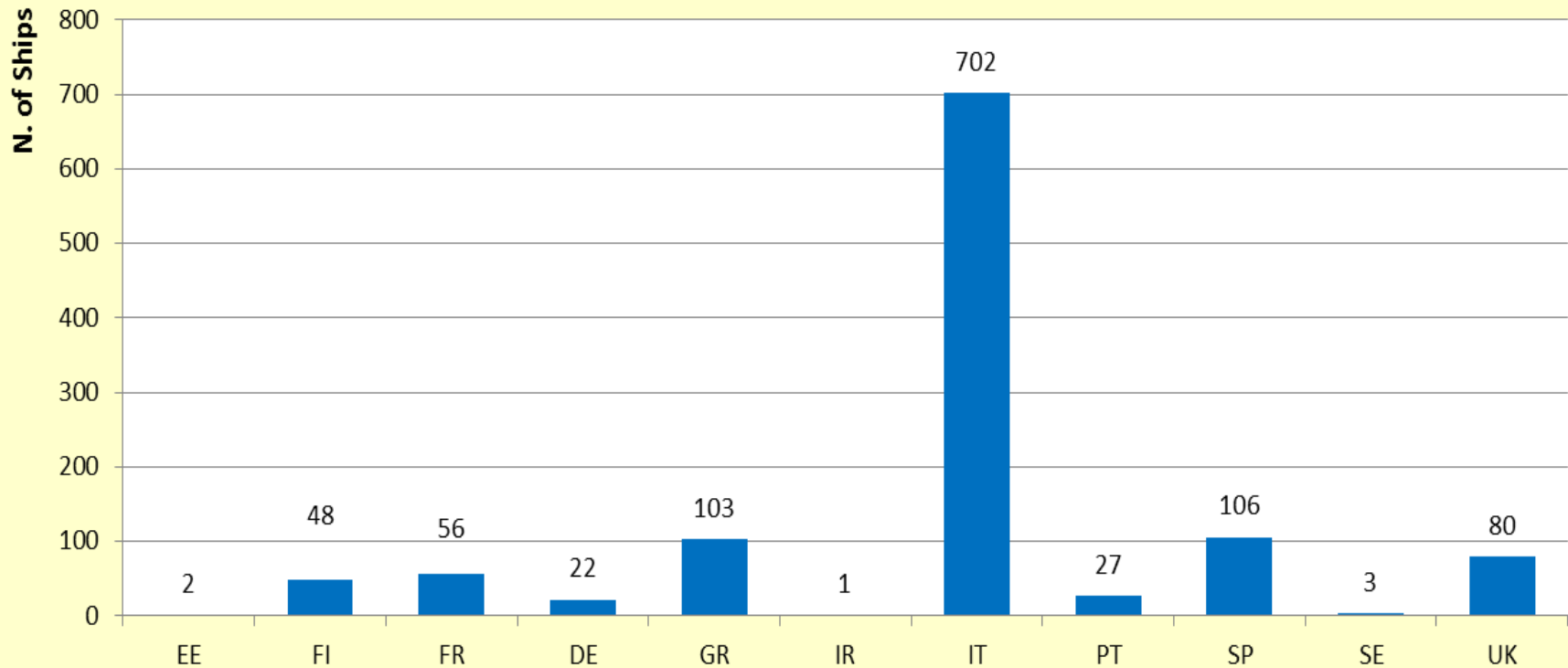


Wood Ships NOT Under the Directive (by Length)





Wood Ships NOT Under the Directive *Total 1150 ships*





- **Wooden** ships are considered to be outside the Directive by almost all Member States.
- Fire Safety standards of Directive not appropriate for wood
- No uniform implementation: 4 ships vs 1201 ships outside Directive
- 64 accidents (only 1 occupational) wooden passenger ships (5%) - 1 death (occupational) & 7 injured.

Composite Ships



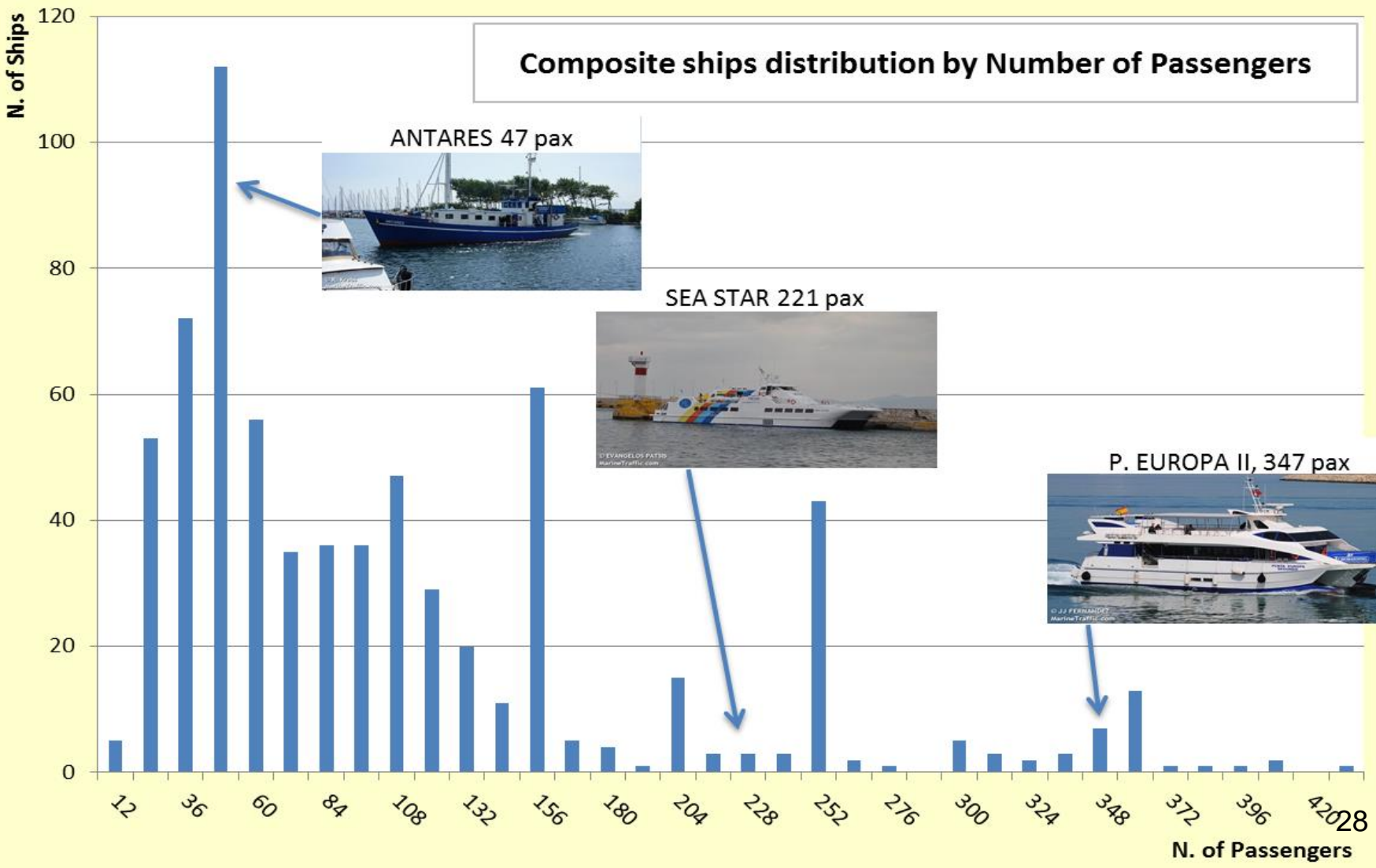
- **Composite** ships are considered to be outside the Directive by all Member States except 4 (without ships in the fleet).
- 15 ships under Directive – all of them HSC.
- Fire safety: 7 out of 16 MS suggest HSC standards. 1 MS remarks that HSC fire protection standards are not easily “exportable” to other type of ships as the structural protection is related to evacuation time and LSA are peculiar.
- Uniform implementation: 0 ships in vs 694 ships out of Directive.
- 93 accidents (0 occupational) (13%) - 10 injured.

Composite Ships



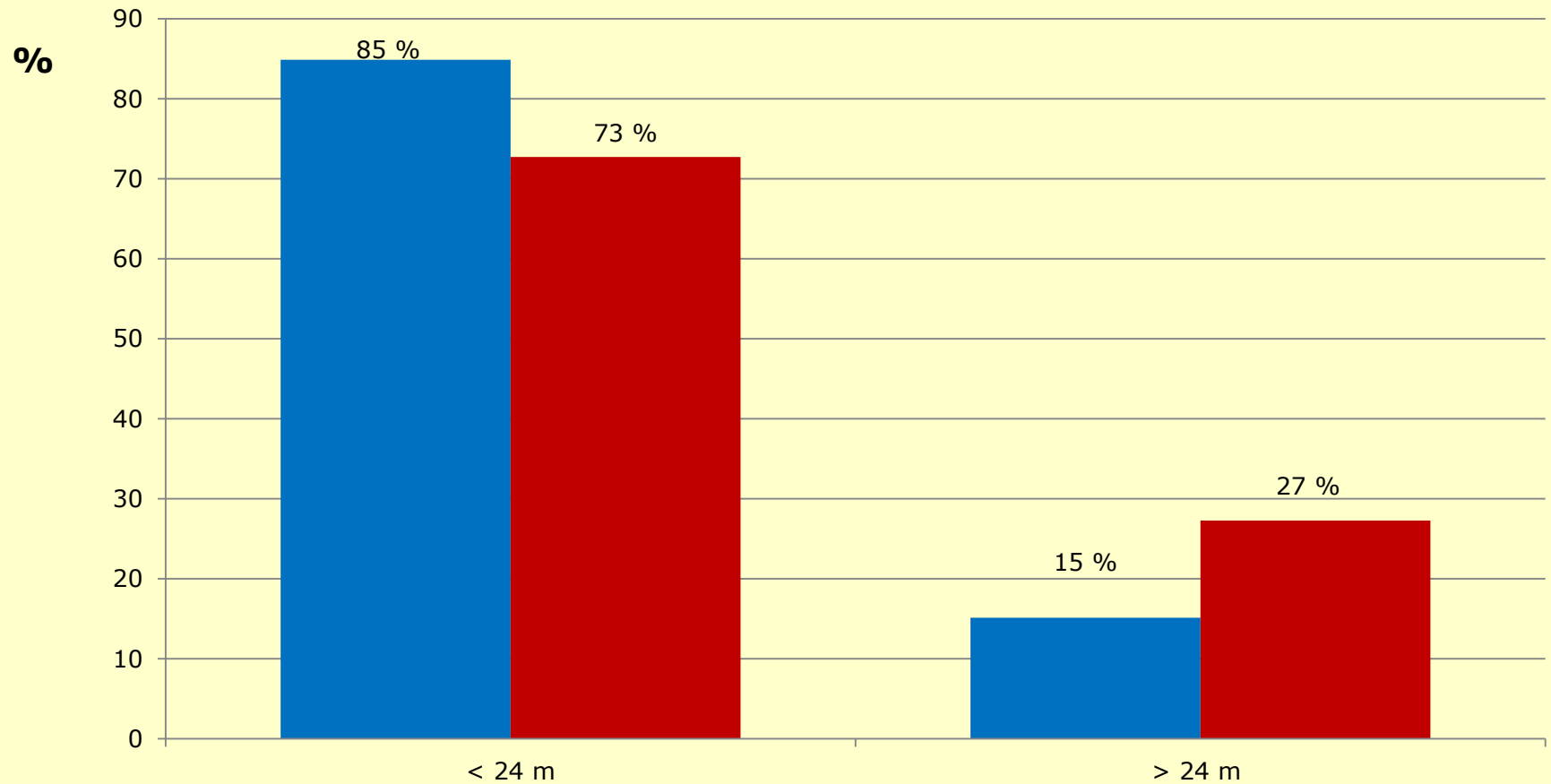
European Commission

Composite ships distribution by Number of Passengers





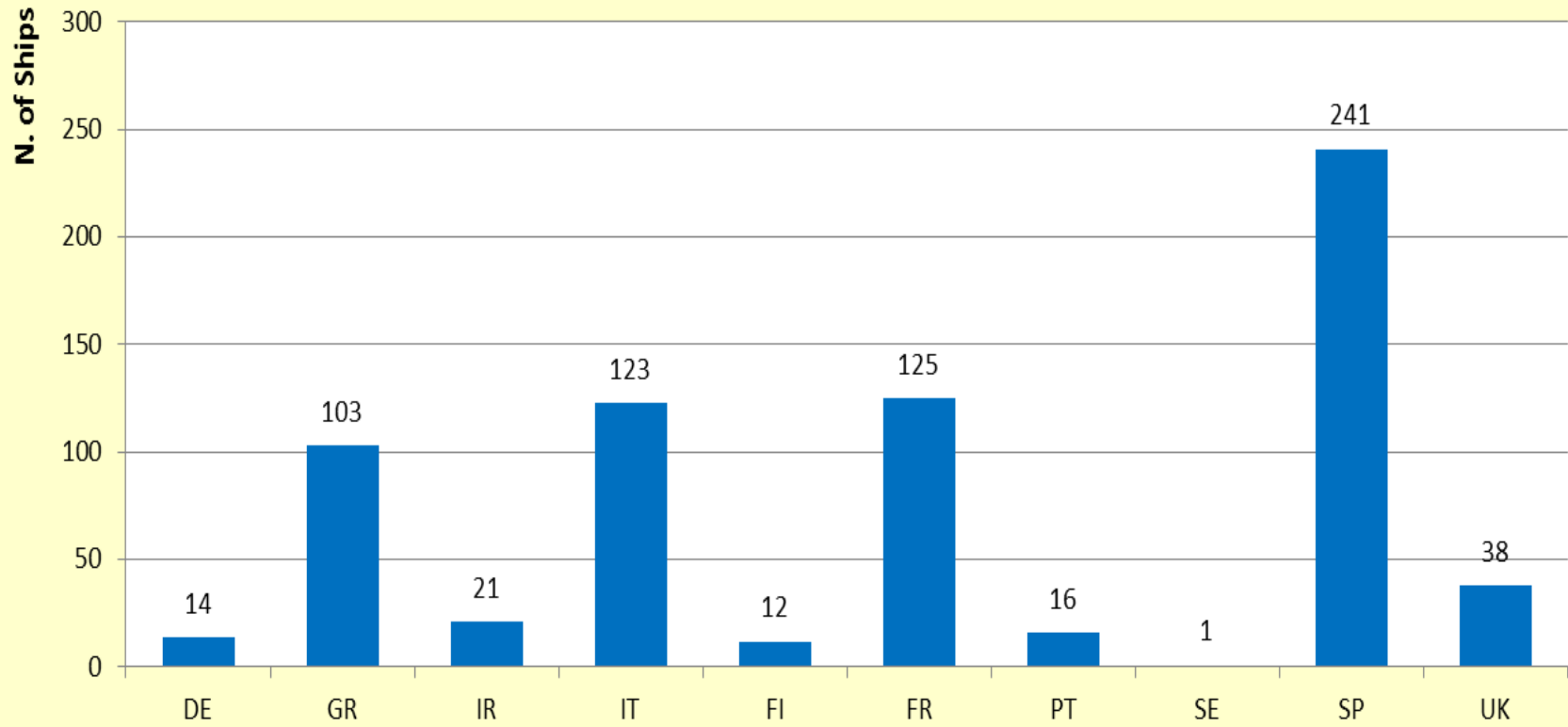
Composite Ships NOT Under the Directive (*by Length*)





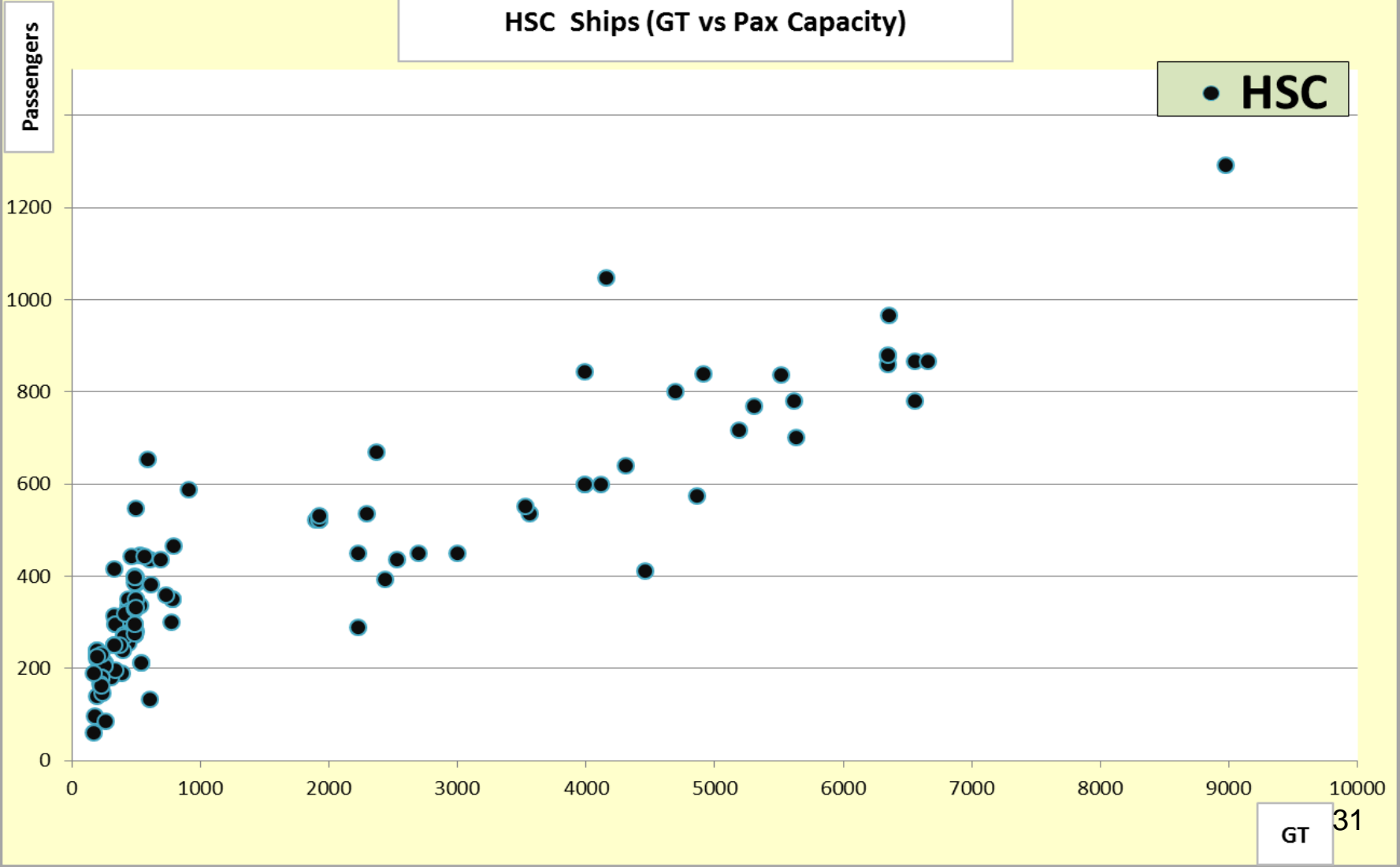
Composite Ships NOT Under the Directive

Total 694 ships





HSC Ships (GT vs Pax Capacity)





Directive 2009/45/EC applies High Speed Craft Code in its entirety.

There is an internal market for vessels of this type; in terms of change of flag, out of **152 HSC**, **50 changed flag (33%)** since the Directive entered into force in 1998.

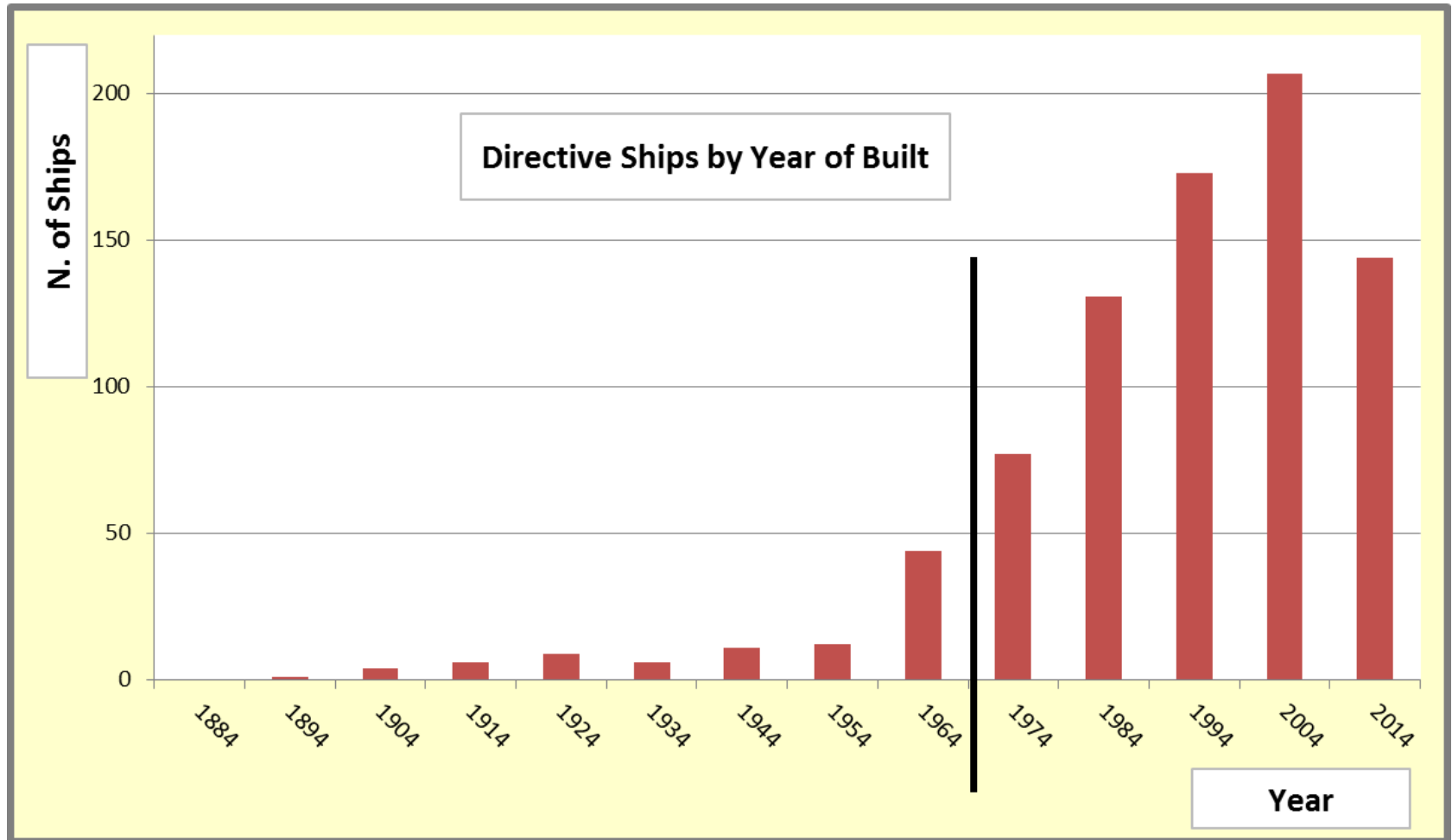
The standards in the Directive are appropriate for both below and above 24m and for any material.



Offshore Service Vessels for Wind-Farms

In the current Directive, the definition of "passenger" adheres to the SOLAS definition and does not take into account so-called "industrial personnel" (mandatory safety training and fulfil certain medical fitness requirements).

The Directive standards are derived from the SOLAS requirements and are not appropriate for ships carrying industrial personnel.



Around 100 ships older than 1965 hold Directive Certificate 34



Ships built before 1965

- 1 before 1900 - NL
- 9 between 1900 & 1910 – 8 NL & 1 SI
- 9 between 1910 and 1919 – 9 NL
- 6 between 1920 & 1929 – 5 NL & 1 NO
- 9 between 1930 & 1939 – 5 NL 2 UK 1 NO 1 IT 1 FI 1 DE
- 5 between 1940 & 1949 – 1 FI 1 IT 3 UK
- 26 between 1950 & 1959 – 1 DE 3 DK 2 FI 2 IT 1 MT 5 NO 1 UK 11 NL
- 27 between 1960 % 1965 – 2 DE 2 DK 1 EL 3 FI 1 IT 1 MT 4 NO 3 PL 1 RO 1 UK 8 NL

TOTAL: 92 ships in total (5 <24m) – 47 NL (51%) 11 NO (12%) 7 UK (7%) 7 FI (7%) 5 DK (5.5%) 5 IT (5.5%) 4 DE (4%) 3 PL (3%) 2 MT (2%) 1 SI (1%) 1 RO (1%) 1 EL (1%)



Traditional ships are built and operated in a very small but **heterogeneous niche market** and are excluded from the scope of the Directive as well as from the SOLAS requirements.

Historic/traditional ships are by their nature old ships, built predominantly with "original materials".

Directive standards not appropriate for traditional sailing rig ships (excludes ships not propelled by mechanical means)

No agreed definition for **Traditional Ships**, however SPS Code wording:

Some sail training ships may be classified by the Administration as "not propelled by mechanical means" if fitted with mechanical propulsion for auxiliary and emergency purposes.



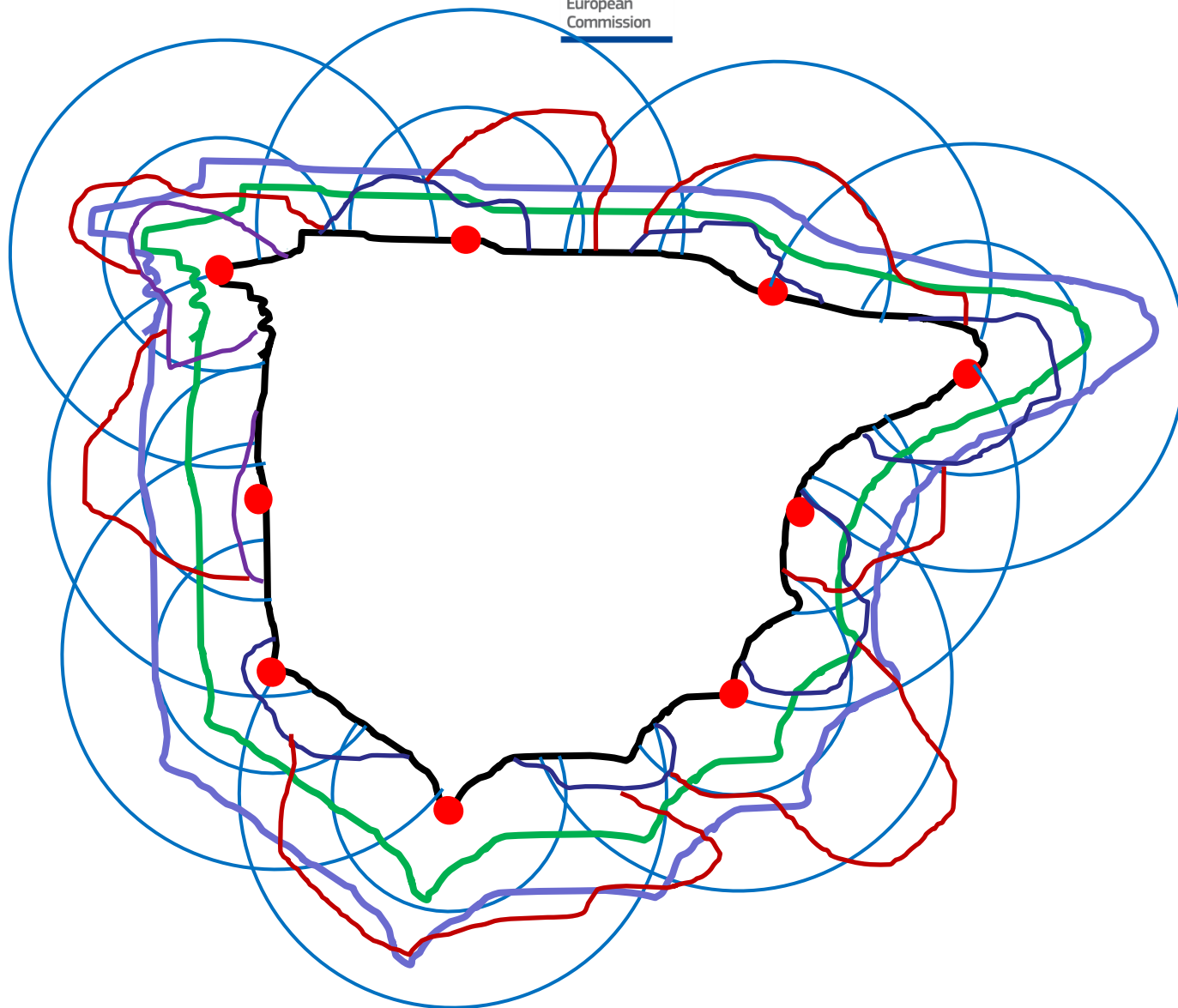
Definition of Sea Areas for non-HSC

Sea Areas

Four different classes (A, B, C & D) defined according to certain parameters: distance to coast, SWH and distance to place of refuge

Limitation in one or more of these parameters modifies the operational environment → the associated rules for each class adapted to be proportionate to the sea area

Lack of harmonisation in definition of sea areas - basis of safety standards. This lack of harmonisation hampers effectiveness of the Directive. Therefore, a simplification of the definition of the sea areas would facilitate a harmonised implementation of the Directive.





MAPS



CLASS A



© Massimiliano Cortese
MarineTraffic.com



© Gerhard Purer
MarineTraffic.com

CLASS B



© Svein W Pettersen
MarineTraffic.com



© LAG
MarineTraffic.com



CLASS C





© Claus Schaefer
MarineTraffic.com

CLASS D



© Antonio Rinaldi
MarineTraffic.com



Significant Wave Height

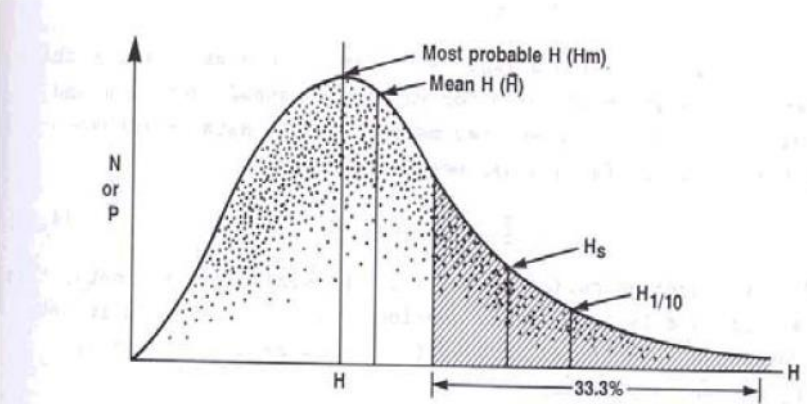
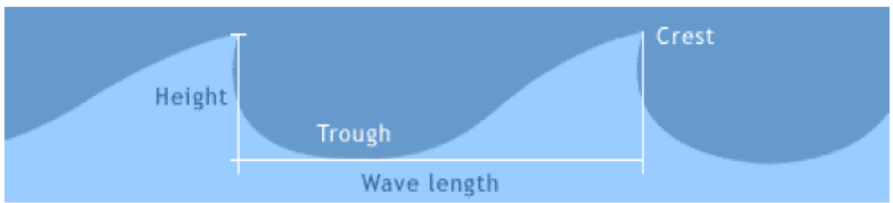


Figure 4.9: The statistical distribution of wave heights showing various parameters (from Bretschneider, 1964)

- **Class C:** up to 4.2m (1%) ($H_m \approx 1.6m$)
- **Class D:** up to 2.5m (1%) ($H_m \approx 0.95m$)

- **Height**
- **Period**
- **Length**
- **Steepness**



Graphic courtesy of Tammy Pelletier, WA State Dept of Ecology



Significant Wave Height affects standards

Damage stability

- **Ro-ro passenger ships:** reference to Directive 2003/25
- **Conventional passenger ships:** 11 MS experts
 - Moments due to wind pressure: A&B 120N/m² vs 80N/m² C&D
 - Not clear from experts where this relaxation of 33% comes from – prudence
 - Implications: ships with large projected areas
 - Final condition after damage (1-comp): 7° for B and 12° for C&D
 - Same safety margin in GZ-curve - 15°
 - Evacuation
 - Similar approach to wind pressure

Significant Wave Height affects standards

LSA Deployment

- 7 MS acknowledge increased difficulty to deploy LSA but no relaxation of standards

Functioning of Machinery

- B&C – Machinery to work up to 15° – No requirement Class D

Bow Height (brought up by 2 MS)

- No requirement Class D – to be in line with Load Line Convention (flexibility Reg.39-3)

Access to spaces below from the ro-ro deck to spaces below the bulkhead deck

- Two alternative standards for D & C<40m – relaxed/strict 48-harmonisation



Distance to Place of Refuge

- Not used by 4 MS
- 7 MS use distance to PoR but do not find it relevant
- 6 MS use it and find it relevant but:
 - 1 MS does not have Class C & D areas defined
 - 1 MS decides on a case by case basis
 - 1 MS only 1 C ship and no D ship
 - 1 MS indicates that the whole coastline is considered PoR
 - Weather considerations – design (size, freeboard, seakeeping) rather than safety standards?



Case Study: Implications of distance to coast limitations

- 13 MS – insignificant change of risks from 3 to 5 nm (C&D)
- 12 MS – significant change of risks from 5 to 20 nm (B&C)
- *Next to Coast* – more probabilities to “beach” the ship in emergency BUT more probabilities of stranding or collision (even communication problems may appear depending on the shape of the coast).





Requirements differences between C&D:

- Emergency generator of a Class D ship 6 hours instead of 3h.
- Class D ship 12 distress hand flares instead of 6.
- Class D ships one person must be qualified for distress and safety radio communication purposes.
- Class D ships to fulfil Chapter IV of SOLAS (which currently practically fulfils)

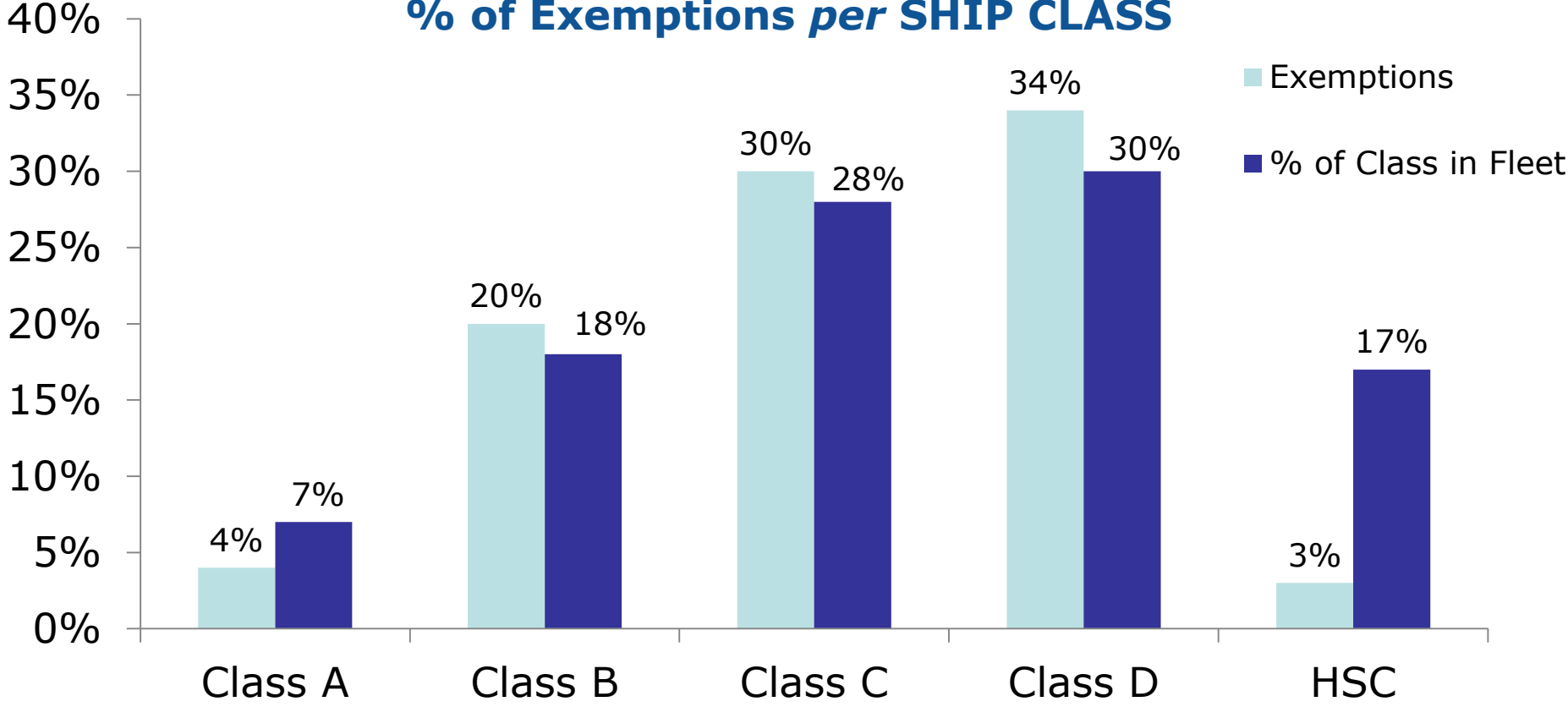


Definition "*Where shipwrecked persons can land*"

- 9 MS expressed the view that it should be deleted
- 6 MS want to retain it without defined criteria, however keeping an undefined parameter can create confusion
- 2 MS want to define criteria



% of Exemptions per SHIP CLASS



Main Exemptions Areas

LSA	Radio	Design	Fire	Navigation	Alarms	Sea area	Helicopter	Wave Height	Electrical
12	10	9	7	4	3	3	3	2	542



As by Product of the REFIT a revision of the format of the ANNEX could be envisaged.

- Annex is getting difficult to handle with the updates;
- Similar structure to MED may be proposed;
- Tabular format with direct references to SOLAS where appropriate instead of copying text;
- Regular amendment of Annex (4-5 years) synchronized with the SOLAS amendment 4 years cycle.



Size of Ships:

Large majority of ships <24m under National rules.

Internal market for ships below 24m is practically non-existent.

In terms of accidents, nothing indicates that ships of less than 24m built according to national rules provide for a lower safety level than the ones built according to the Directive.

Conclusions: any decision regarding the size of ships to be covered by the Directive would neither relate to safety nor internal market problems.

In line with the above mentioned reasoning, the option would then be to exclude all ships (<24m) from the Directive.



Aluminium is considered as equivalent to steel by a large majority of Member States; Directive in practice covers both ships built in steel and most of aluminium ships.

Conclusions:

It is recommended to clarify in the directive that aluminium is considered equivalent to steel only when it has the proper fire insulation to provide equivalent structural integrity to the current SOLAS requirements.



Wooden ships are considered to be outside the Directive by all Member States except one

Conclusion:

It is recommended to make more explicit in the Directive that wooden ships are excluded from the scope



Composite Material

Maintain the current situation, excluding composite built ships from the scope of the Directive;

Outside the scope of the REFIT:

Develop specific requirements for this material at EU level, which in practice would mean extending the scope of the Directive in order to foster the development of a market as called for by some Member States.



High Speed Craft (HSC)

The standards in the Directive are appropriate for both below and above 24m and for any material.

Conclusion:

There is no reason to change the current regime.

Offshore Service Vessels for Wind-Farms

The Directive standards are derived from the SOLAS requirements and are not appropriate for ships carrying industrial personnel.

Conclusion:

It should be clearly specified in the Directive that this type of ships should be excluded from the Directive scope.



Sea Areas

Identification of the sea areas could be simplified by considering only the distance to the coast line, eliminating from the definition the wave height and distance to the place of refuge.

Sea areas could also be simplified by reducing them from 4 to 3 by merging the definitions for sea areas C and D. This simplification will imply ship's categories being reduced from 4 to 3.

Conclusion: There is potential for simplification in the definition of sea areas.



THANK YOU

DISCUSSION

Directive 2009/45/EC on safety standards and on safety rules and standards for passenger ships