

LOOK BEHIND YOU





British Sub-Aqua Club



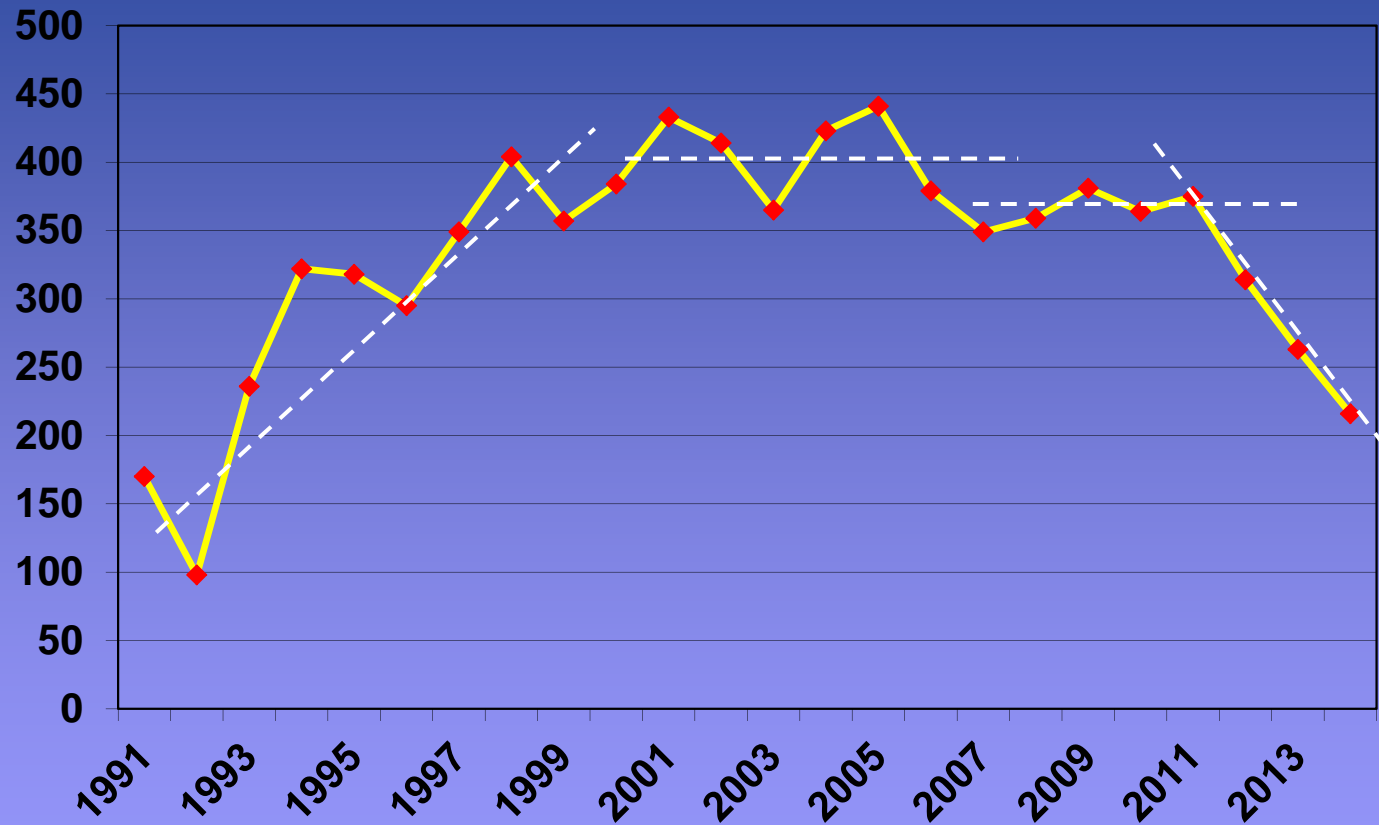
2014 Incidents Report ANALYSIS & LESSONS LEARNED



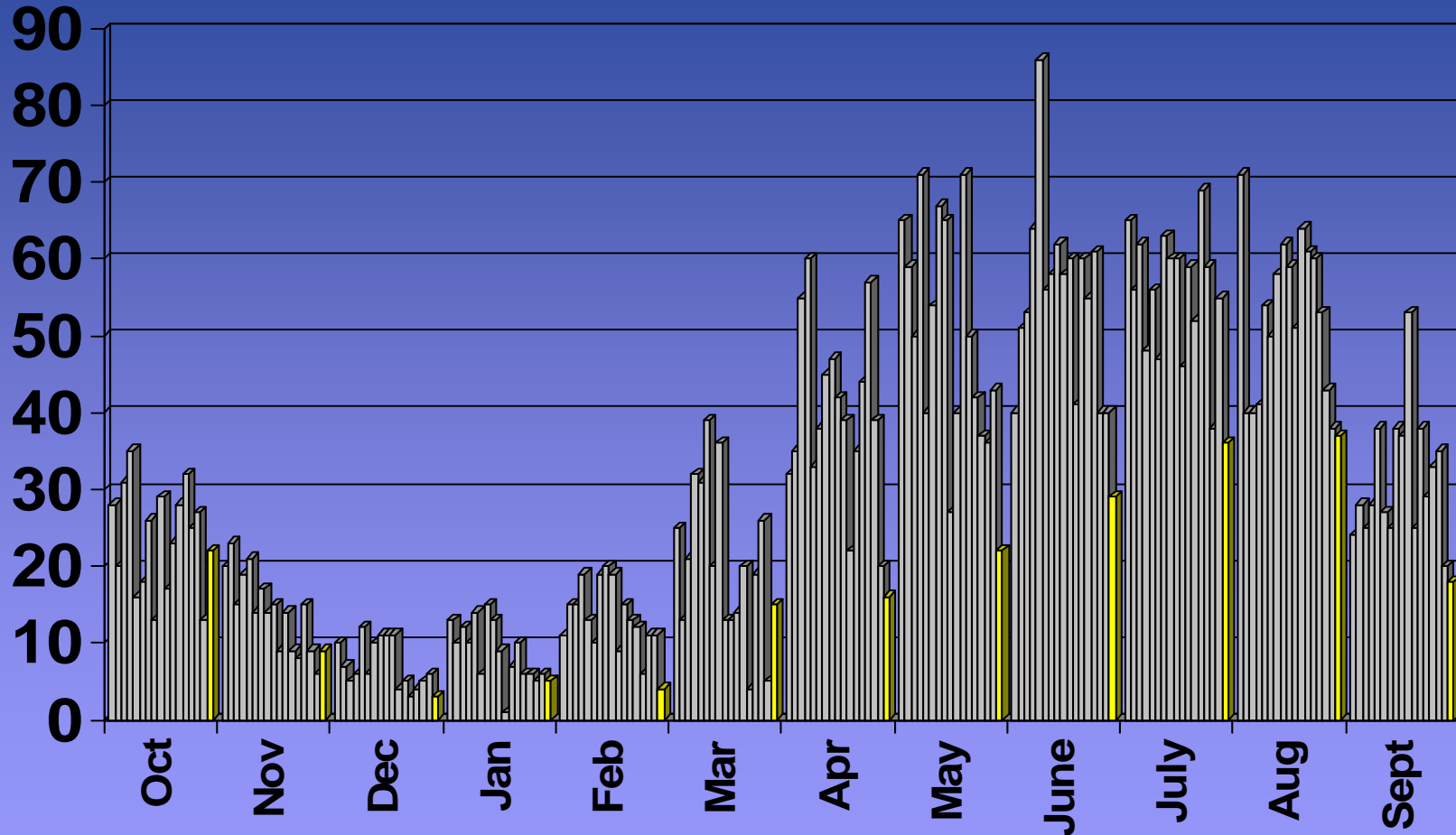
- Review of the statistics
- Comments on issues involved
- The future
- Conclusions on 2014



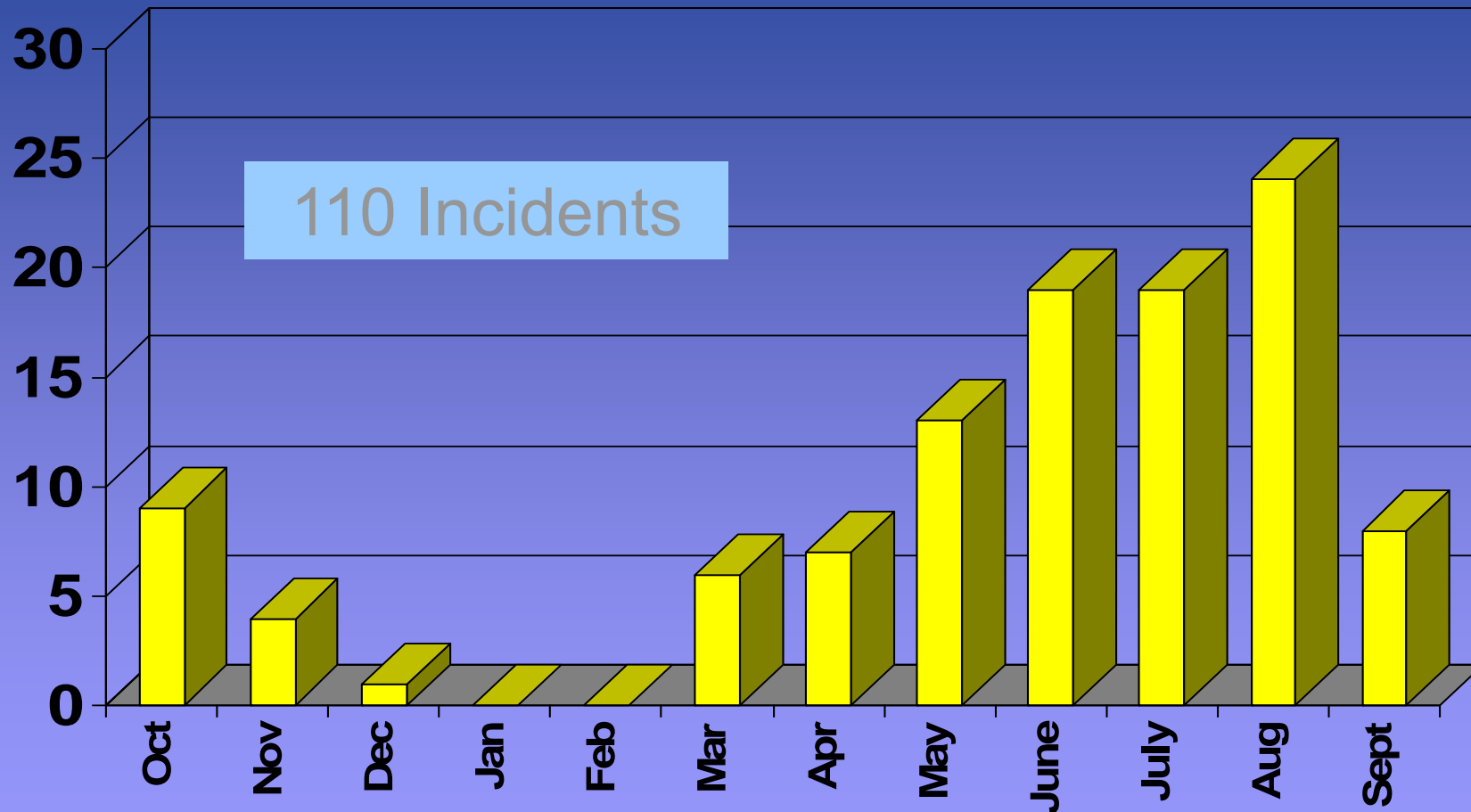
UK Incidents by year



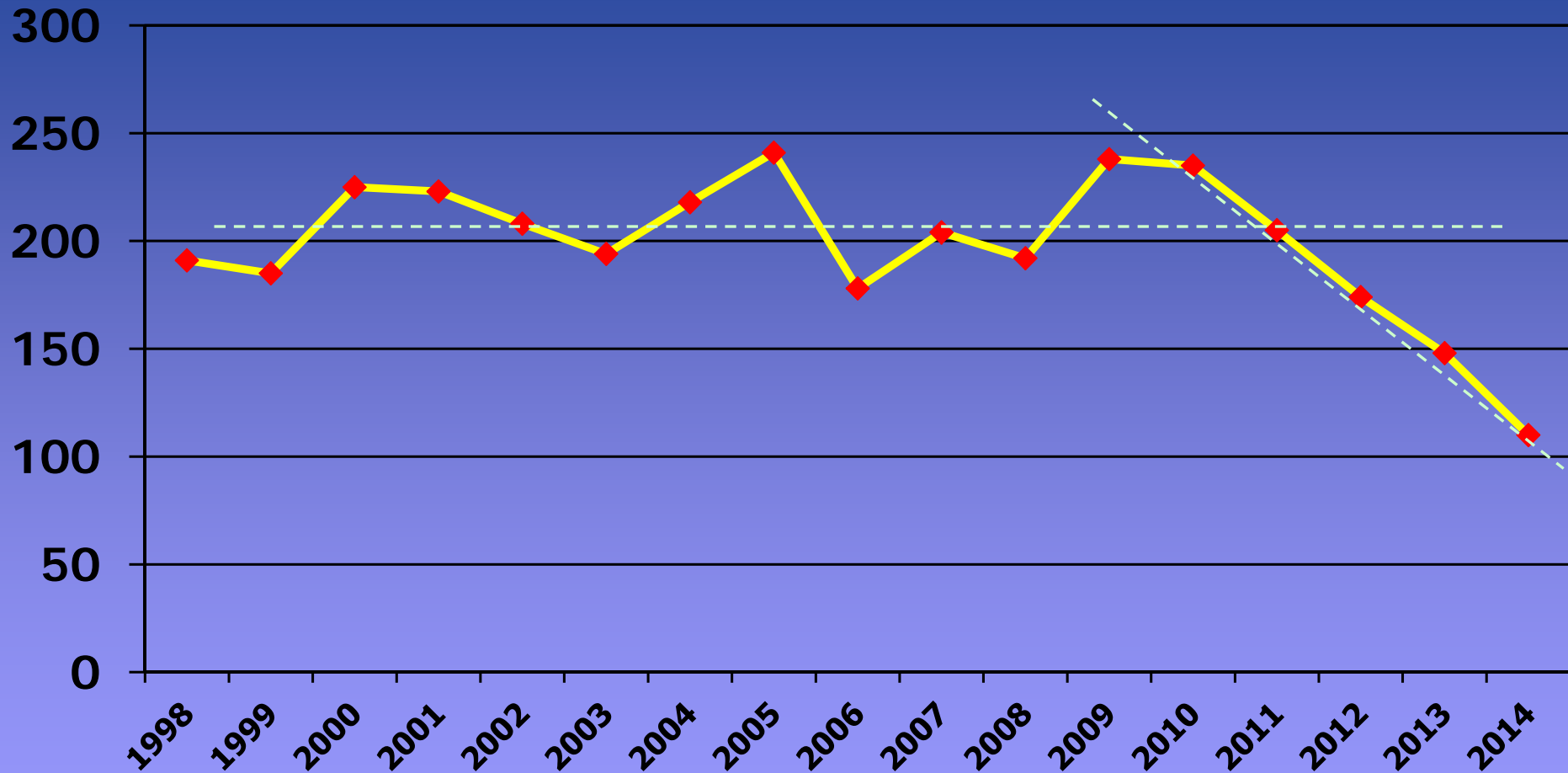
Monthly incident distribution



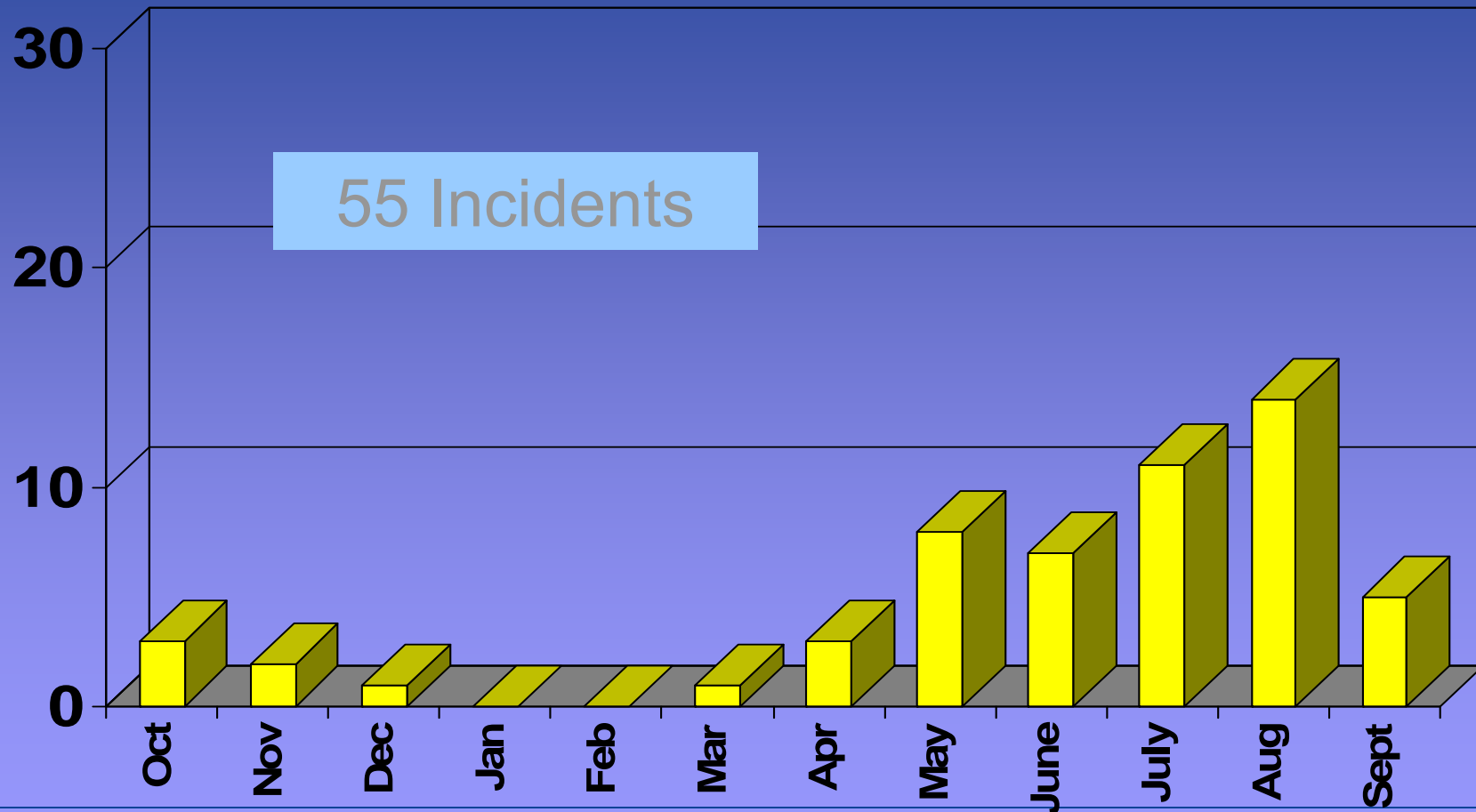
Coastguard assistance



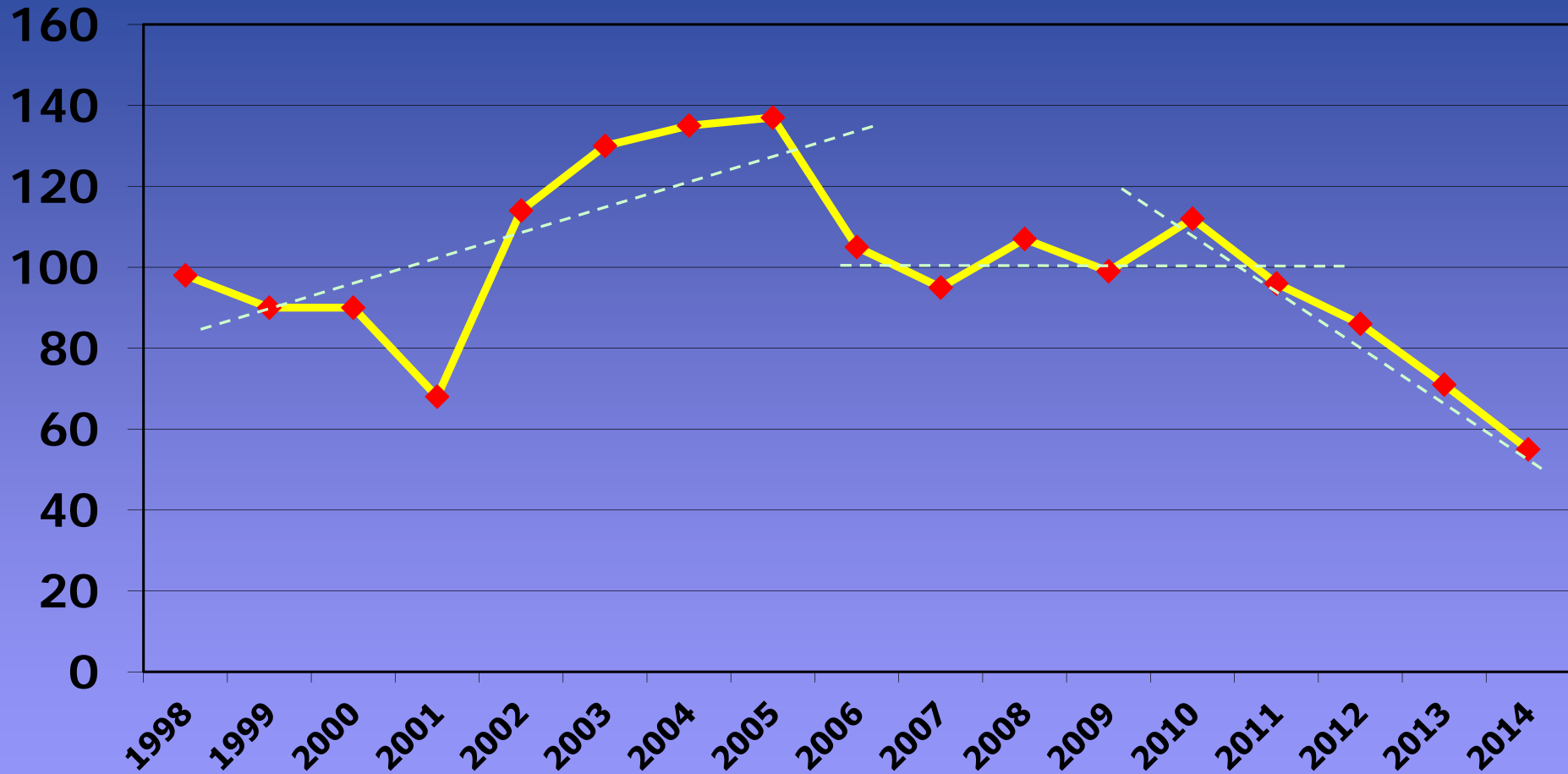
Coastguard assistance



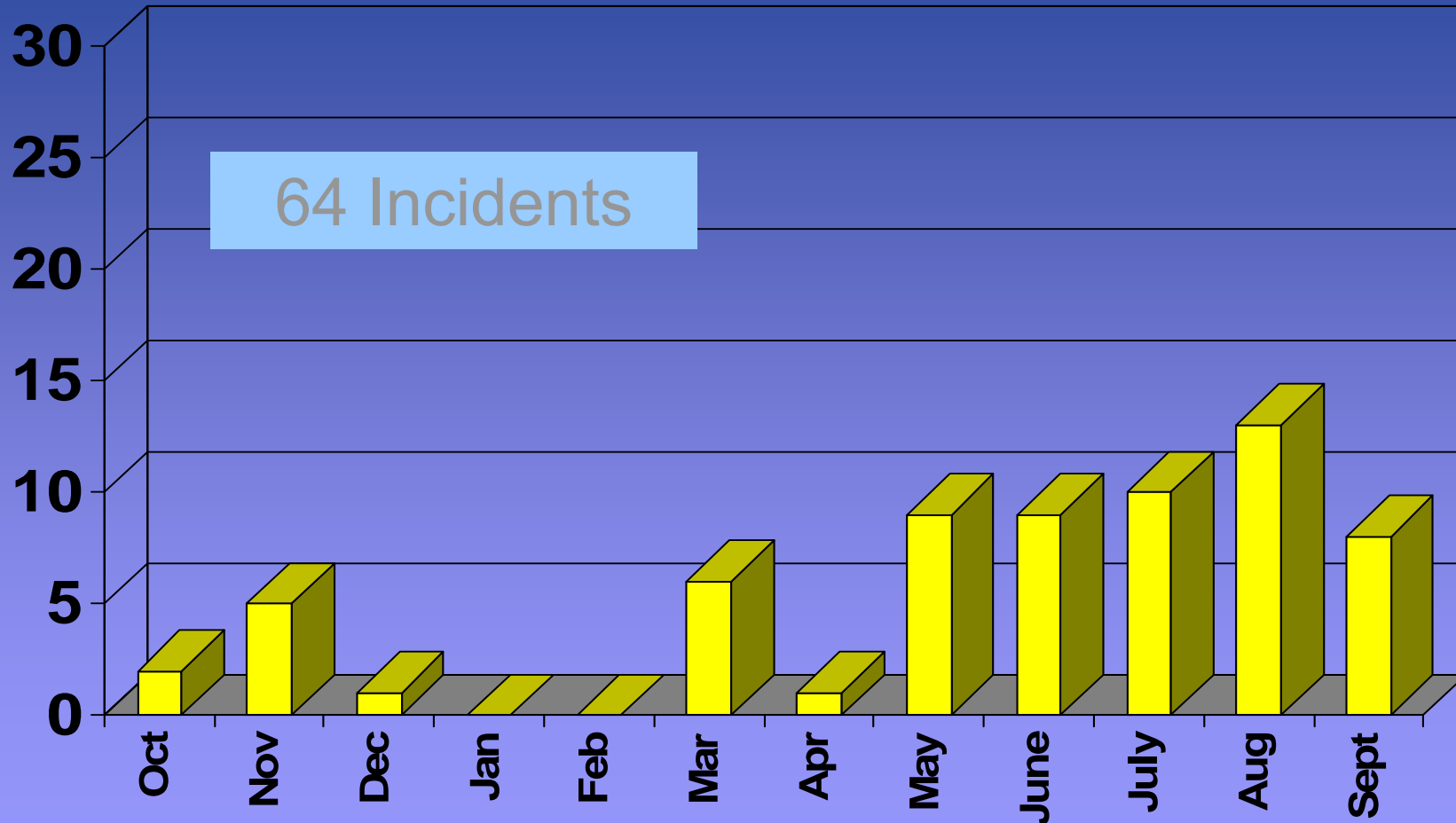
Helicopter involvement



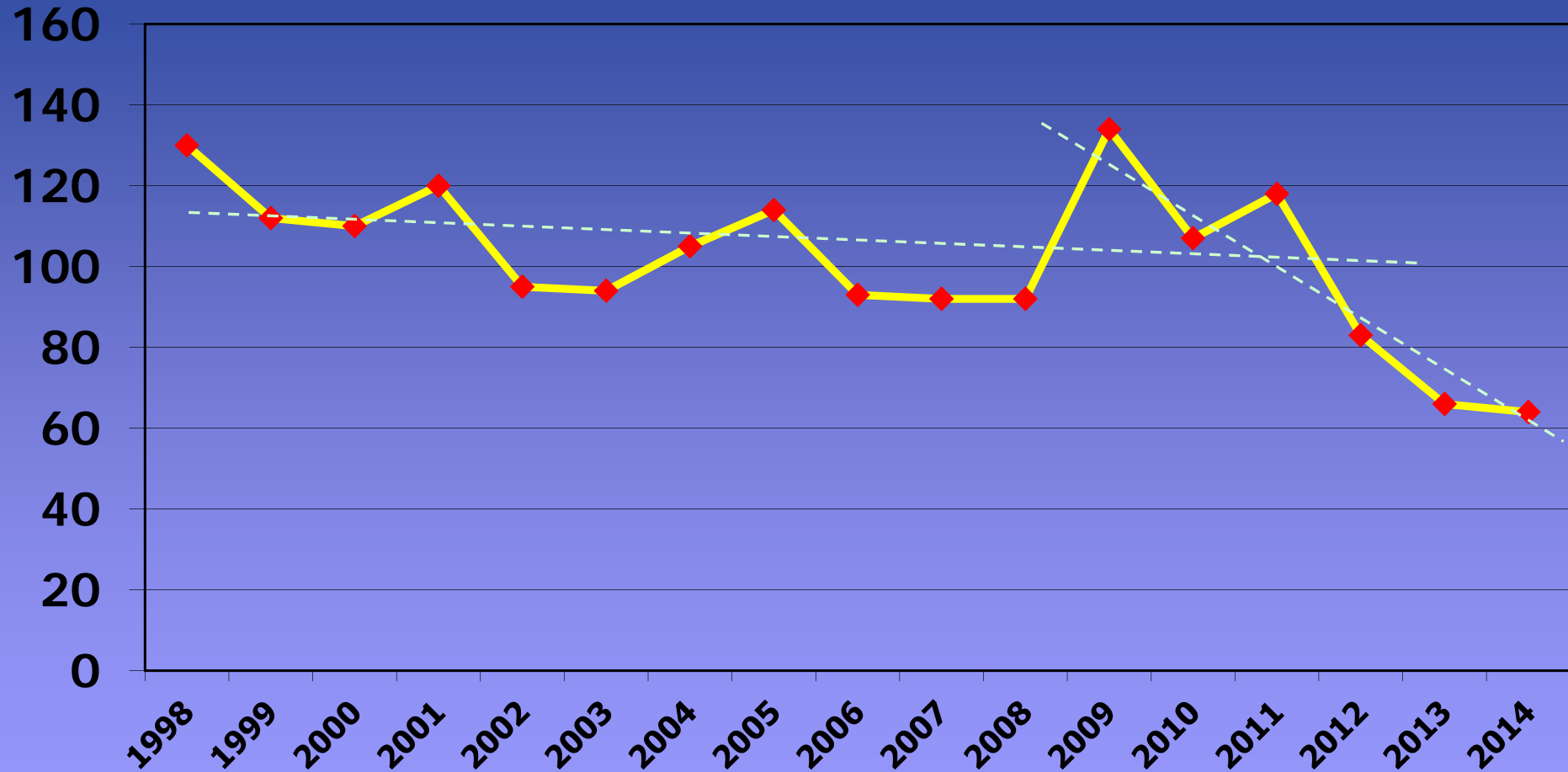
Helicopter involvement



RNLI assistance



RNLI assistance



Fatalities



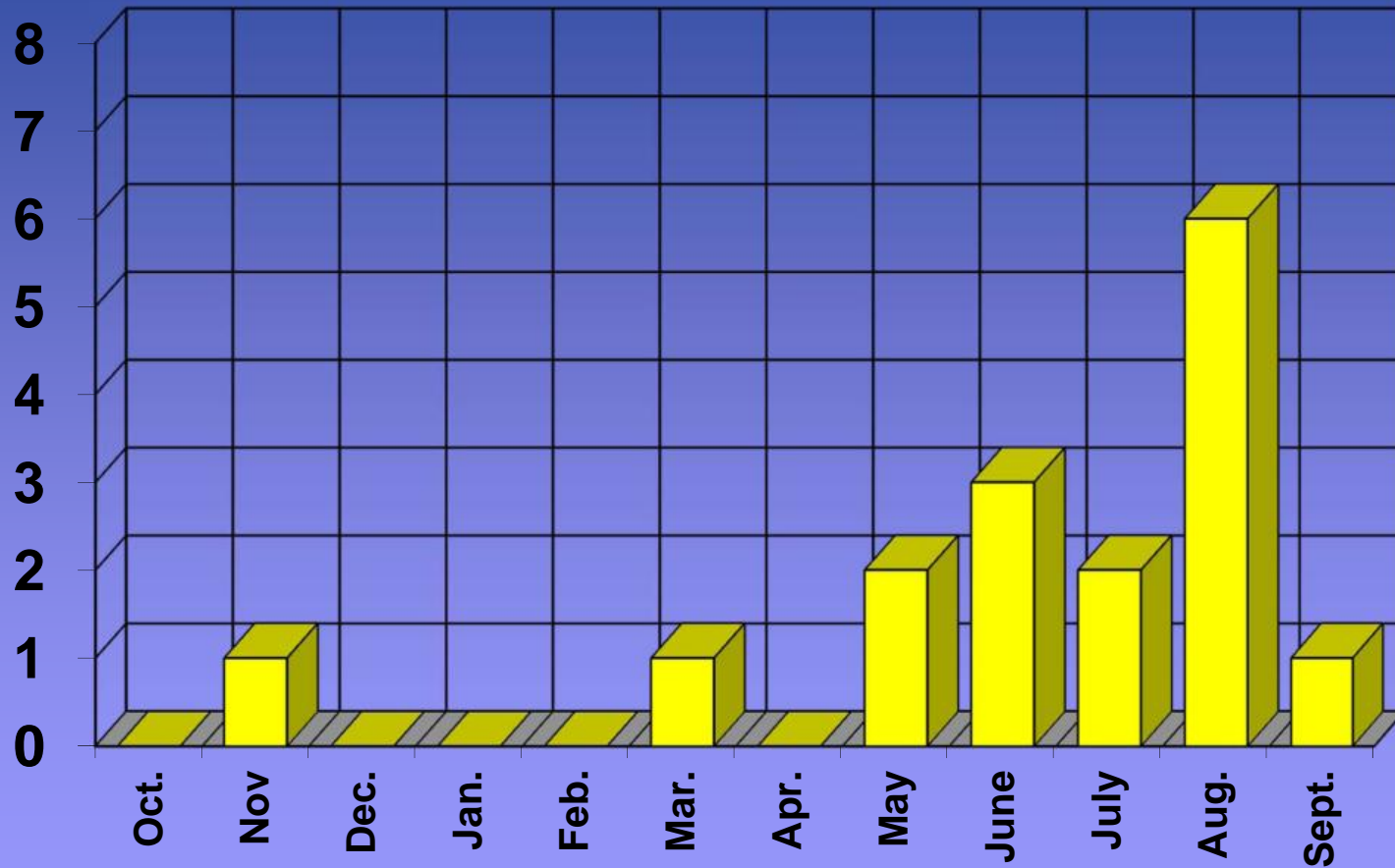
16 UK fatalities (10 year average = 15.4)

- 6 BSAC members (10 year average = 6.2)
- 10 non BSAC members (10 year average = 9.2)
Includes one case of a double fatality

7 overseas fatalities involving BSAC members

- 5 member fatalities
- 2 non member fatalities
Includes two cases of double fatalities

Fatalities – Distribution



Fatalities – Related factors



	BSAC					Other													
Insufficient info					x	x	x	x	x	x							x	x	x
Medical	x	x	x	?							x	x							

Fatalities – Related factors



	BSAC						Other									
Insufficient info					x	x	x	x	x					x	x	x
Medical	x	x	x	?							x	x				
Fell unconscious in/w	x			x	x					x	x	x		x	x	

Fatalities – Related factors



	BSAC					Other										
Insufficient info					x	x	x	x	x					x	x	x
Medical	x	x	x	?									x	x		
Fell unconscious in/w	x		x	x			x	x	x				x	x		
Trio or more	x		x		x		x				x					x

Fatalities – Related factors



	BSAC						Other									
Insufficient info					x	x	x	x	x					x	x	x
Medical	x	x	x	?						x	x					
Fell unconscious in/w	x		x	x			x	x	x	x	x					
Trio or more	x		x		x		x			x						x
Separation				x	x	x	x									

Fatalities – Related factors



	BSAC						Other									
Insufficient info					x	x	x	x	x					x	x	x
Medical	x	x	x	?							x	x				
Fell unconscious in/w	x		x	x			x	x	x		x	x				
Trio or more	x		x		x		x				x				x	
Separation				x	x	x	x									
DCI / Barotrauma								x			x					
Solo														x		
Trimix						x										
Rebreather								x								
>50m						x										
Missed stops						x										

Fatalities – Related factors

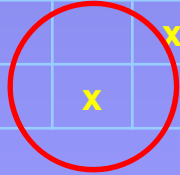


	BSAC						Other									
Insufficient info					x	x	x	x	x					x	x	x
Medical	x	x	x	?									x	x		
Fell unconscious in/w	x		x	x			x	x	x				x	x		
Trio or more	x		x		x		x					x				x
Separation				x	x	x	x									
DCI / Barotrauma								x				x				
Solo															x	
Trimix						x										
Rebreather									x							
>50m						x										
Missed stops						x										
Snorkel																x

Fatalities – Related factors



	BSAC						Other									
Insufficient info					x	x	x	x	x					x	x	x
Medical	x	x	x	?						x	x					
Fell unconscious in/w	x		x	x			x	x	x	x	x					
Trio or more	x		x		x		x			x					x	
Separation				x	x	x	x									
DCI / Barotrauma								x		x						
Solo														x		
Trimix						x										
Rebreather							x									
>50m						x										
Missed stops						x										
Snorkel															x	
Cave diver (poison gas)												x				

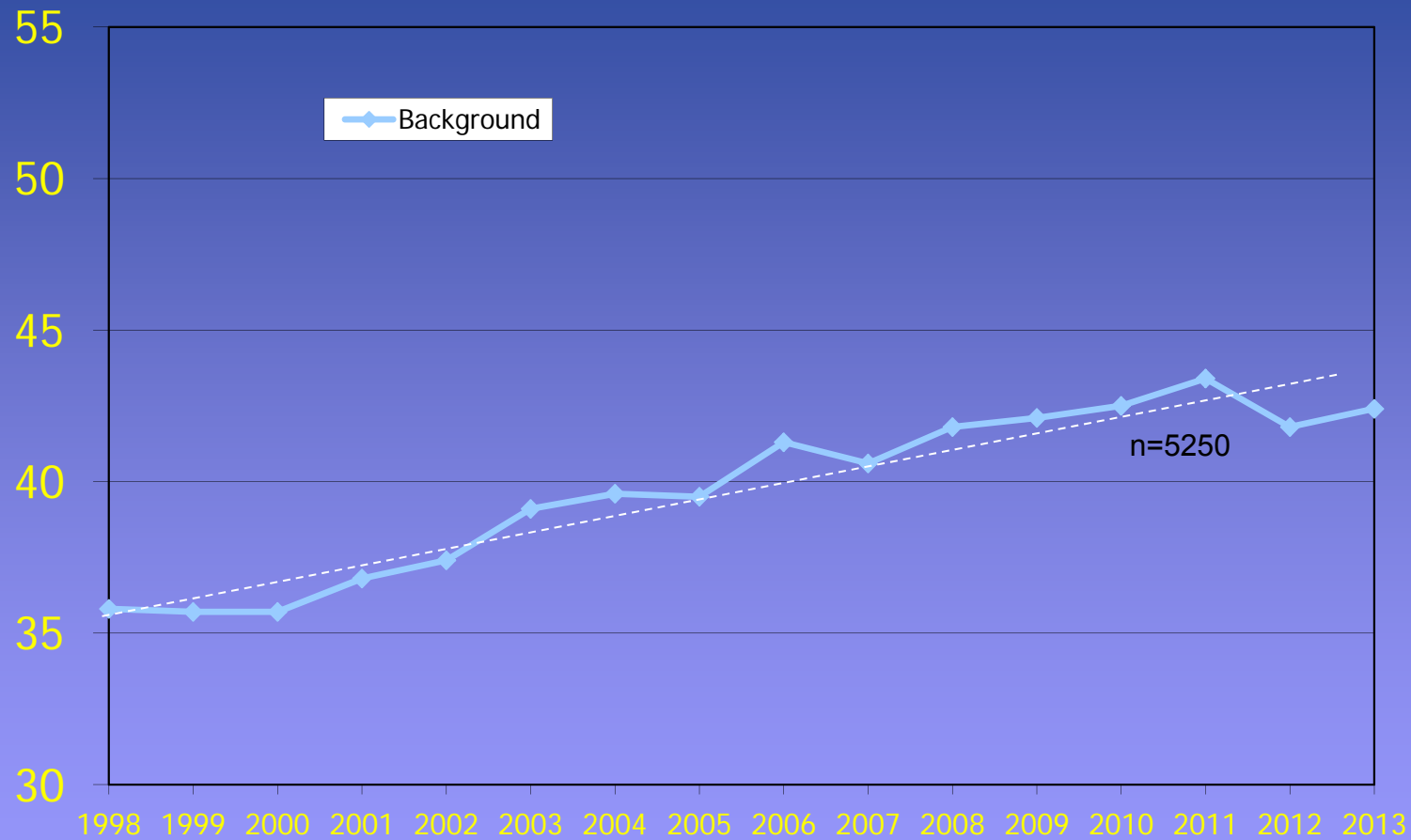


Fatalities – Related factors

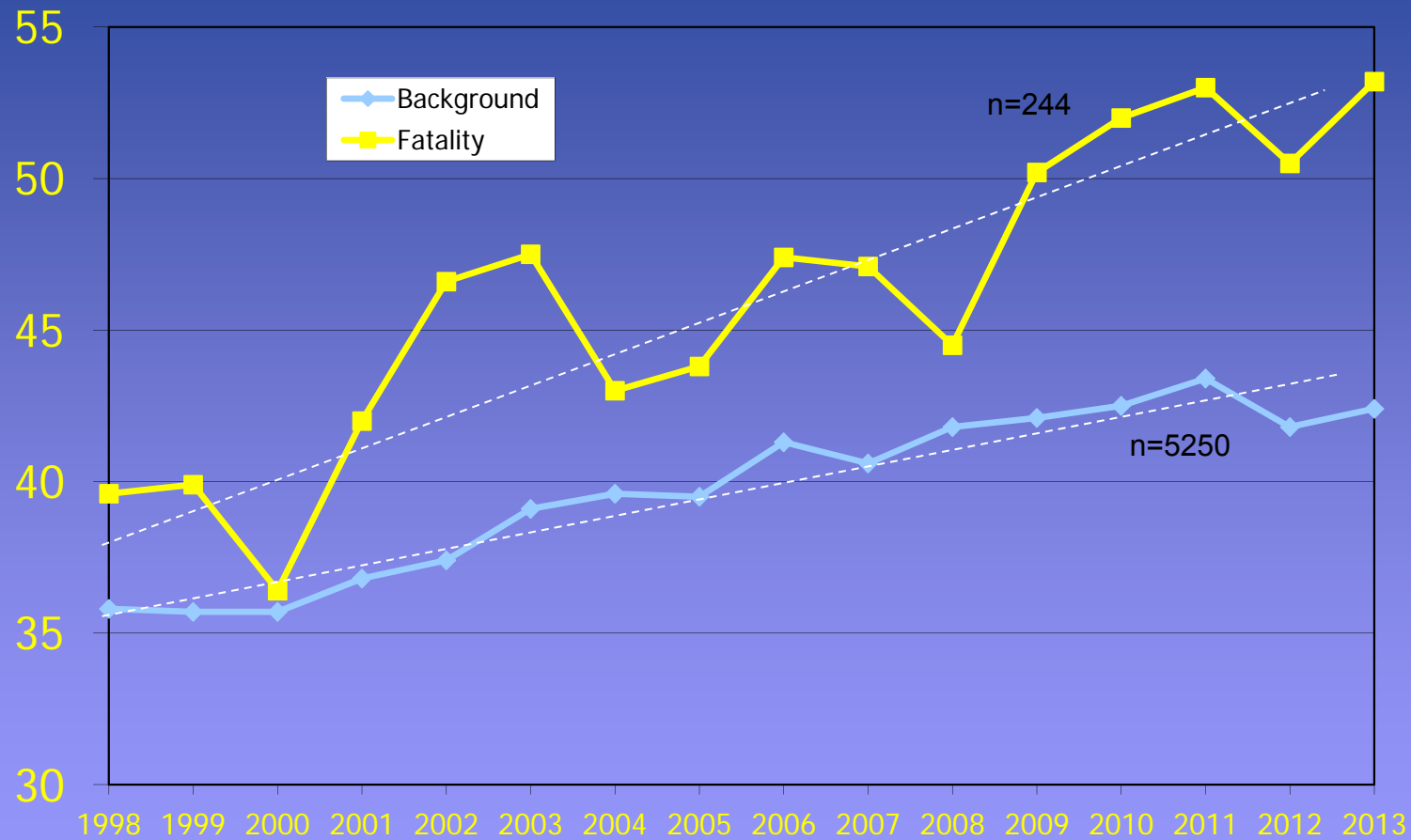


	BSAC							Other									
Insufficient info					x	x	x	x	x						x	x	x
Medical	x	x	x	?										x	x		
Fell unconscious in/w	x		x	x				x	x	x				x	x		
Trio or more	x		x		x			x					x				x
Separation				x	x	x	x										
DCI / Barotrauma									x				x				
Solo																x	
Trimix							x										
Rebreather										x							
>50m							x										
Missed stops							x										
Snorkel																x	
Cave diver (poison gas)																x	
Age	56	62	76	38	49	62	41	45	44	33	58	50	40	24	42	NK	

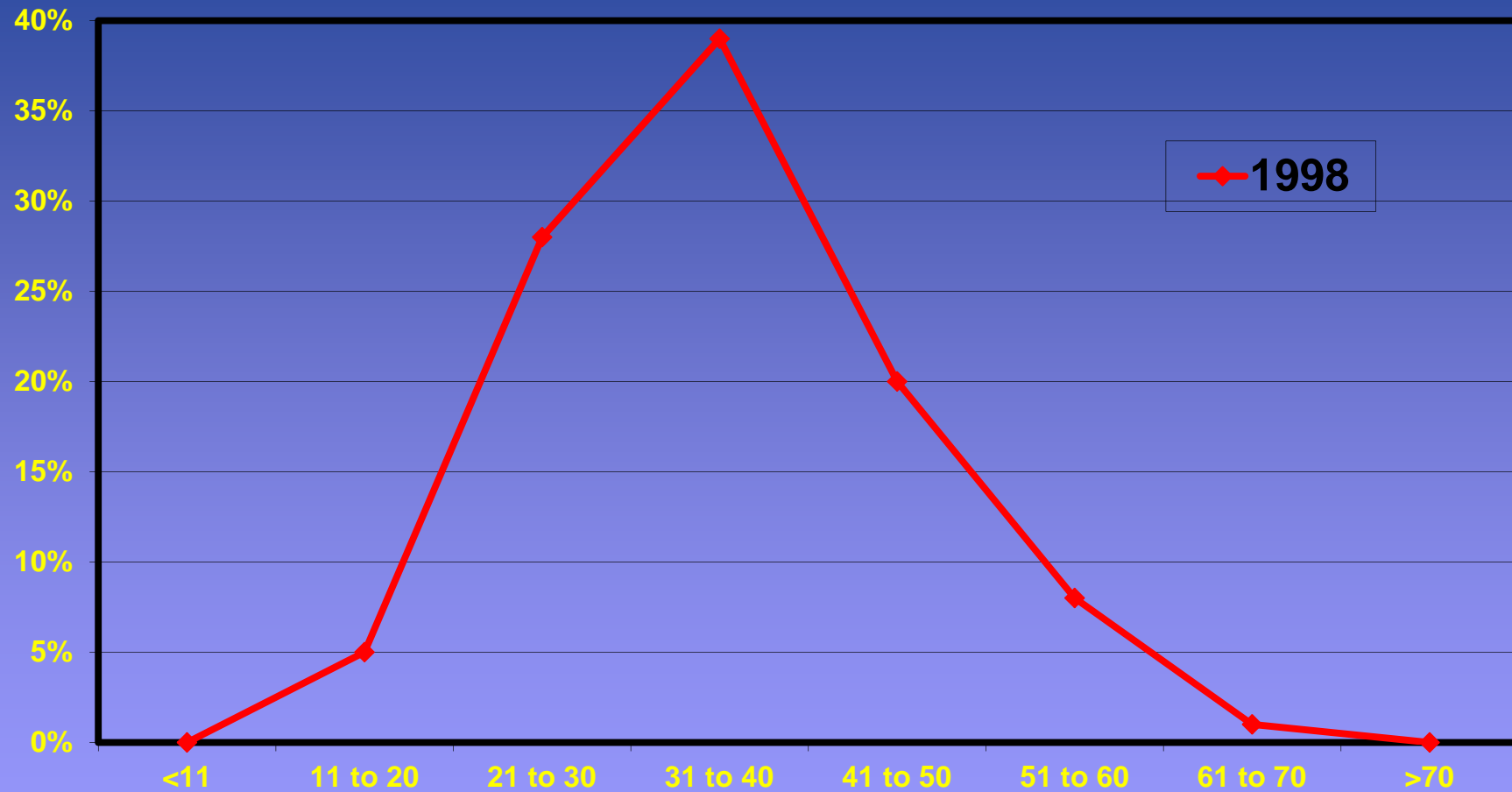
Average age



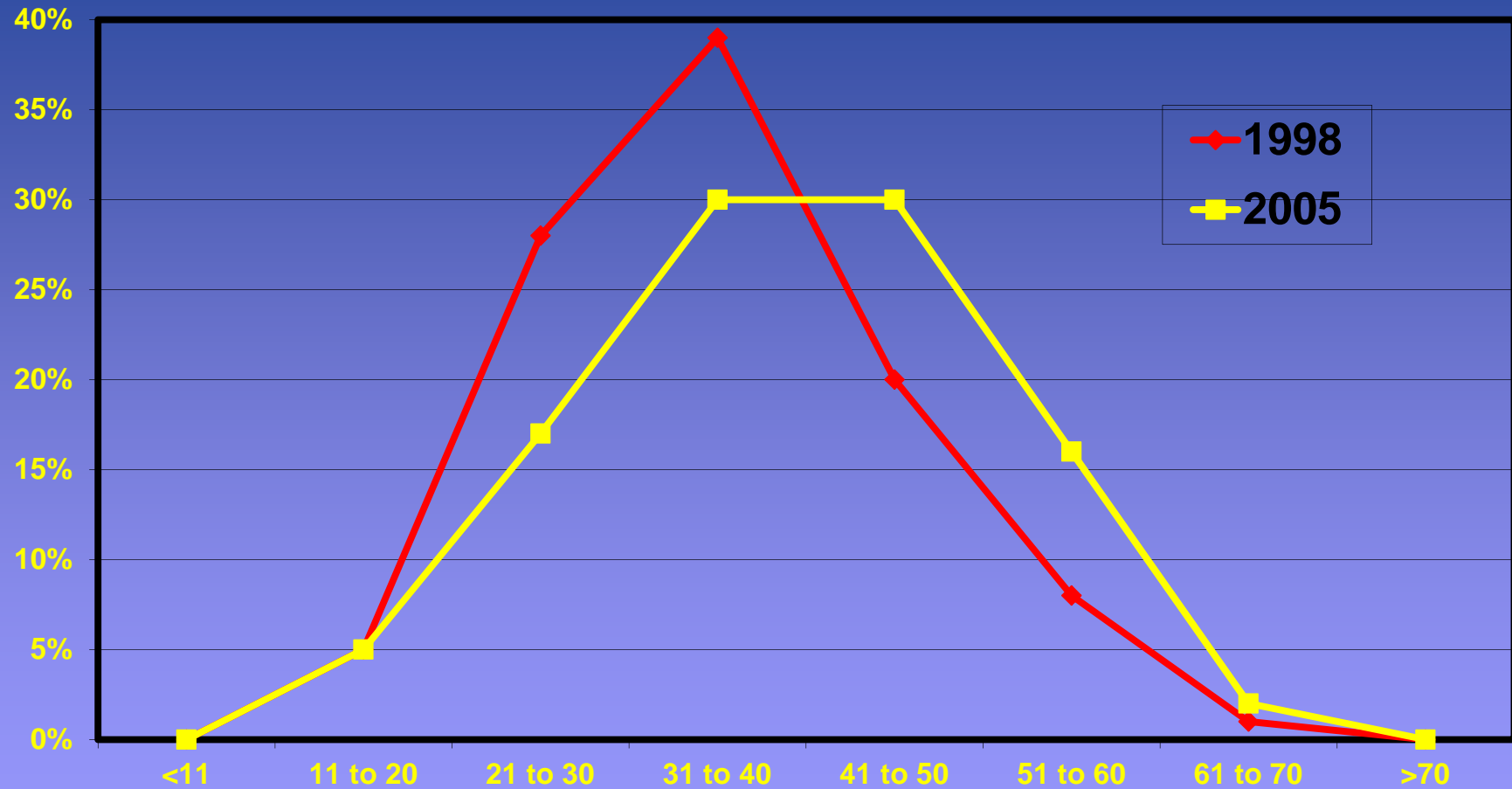
Average age



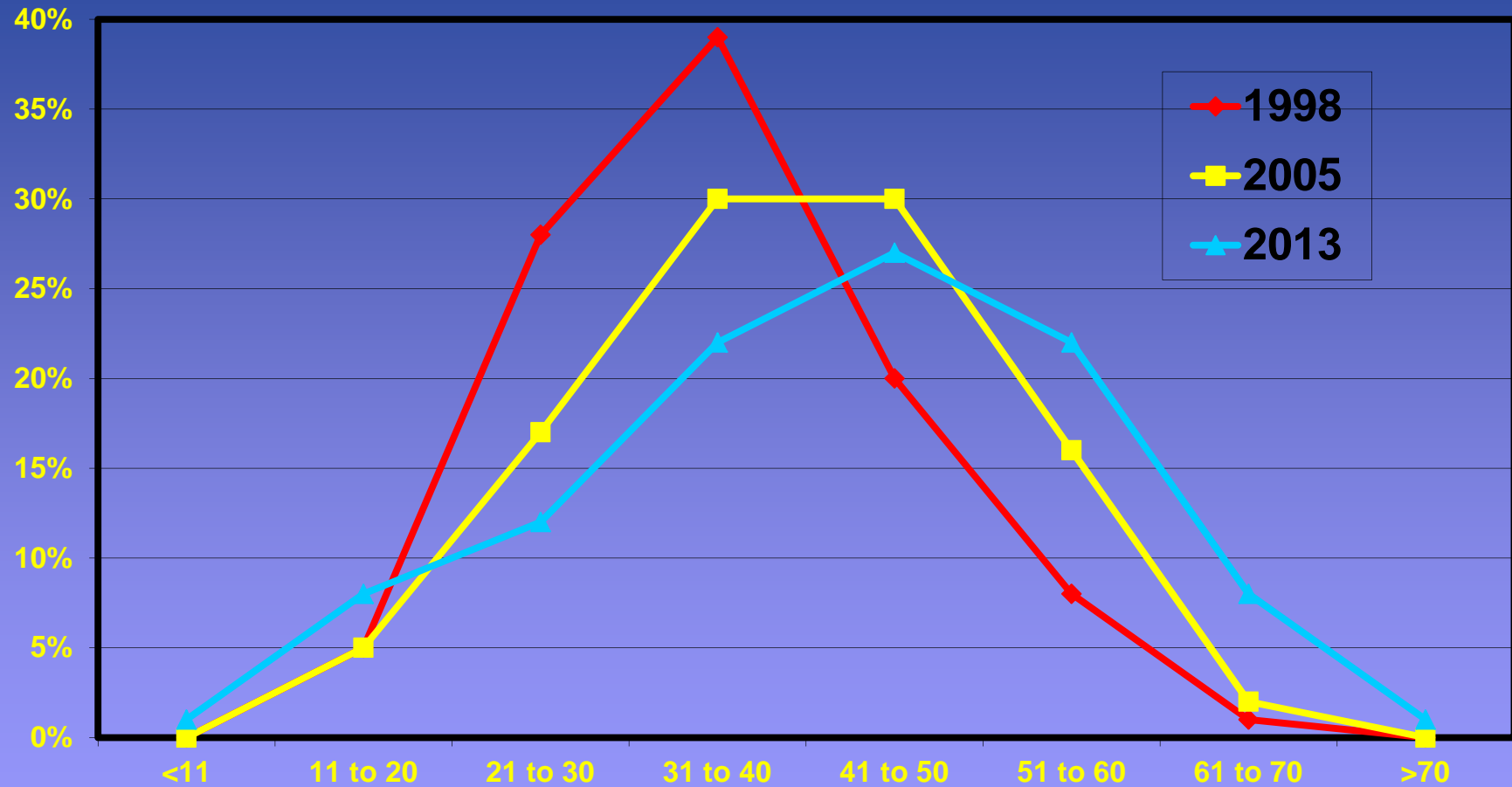
Age Distribution



Age Distribution



Age Distribution





- Average age of the 5 UK 'Medical' deaths this year is 60
- Diving population is getting older
- As a proportion of the UK diving population there are 3 times the number of people >50 years old, 1998 vs 2013
- Death from cardio-vascular disease in UK population

45 to 54	0.06% per annum
55 to 64	0.17% per annum
65 to 74	0.47% per annum
- In a way then, there should be more 'Medical' fatalities!
Diving probably provides a degree of 'filtering'
- Diving creates abnormal stresses that may precipitate a hidden, pending problem
- But what do we do with this knowledge??

CAUTION!!!



What's Happening?



- Drowning
- In water death
- Barotrauma
- Heart attack /stroke?

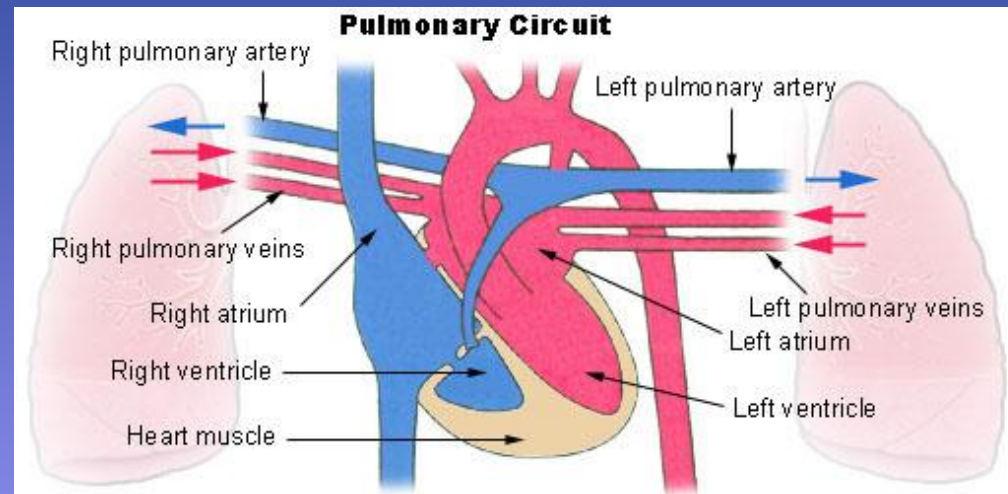
SYMPTOMS & SIGNS

- Breathlessness
- disorientation
- Unconsciousness
- Pink frothy sputum
- Post Mortem
 - Fluid filled lungs
 - Lungs heavy
 - Gas in circulation

CAUSES?



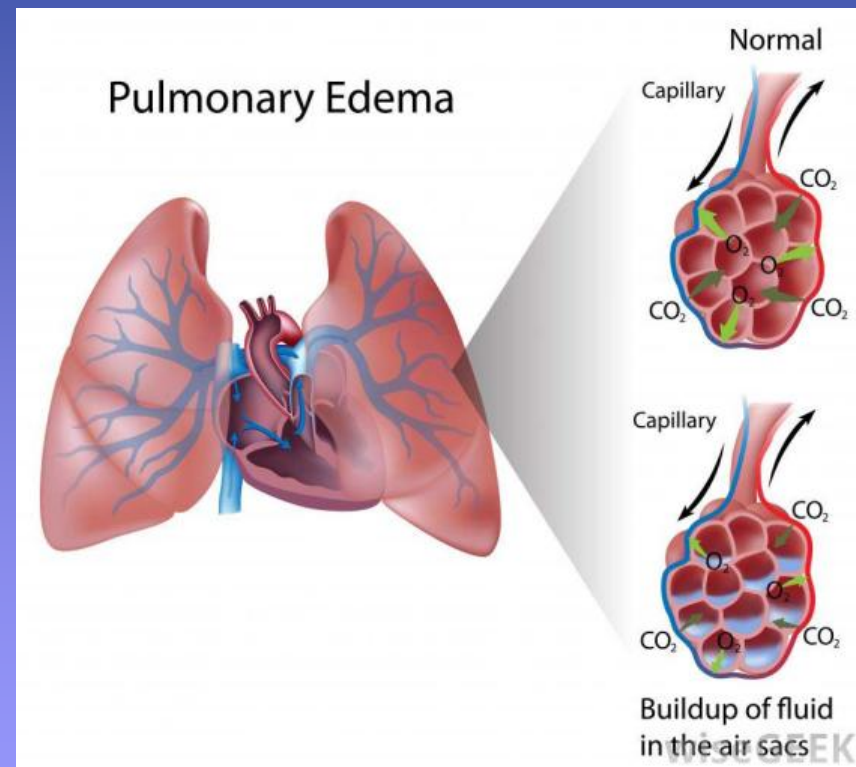
- IMMERSION
- Increase in circulating volume (~500ml)
- Increase heart volume
- Decrease lung volume
- Causes renal extraction



CAUSES



- High Pressure heart and Pulmonary Artery
- Low Pressure lungs
- Fluid into lungs



SYMPTOMS



- Breathlessness
- Pink frothy sputum
- Unconsciousness
- CPR
- At Post mortem
 - Fluid filled lungs
 - Lungs heavy
 - Gas in circulation



AVOIDANCE?



- DO NOT over-Hydrate
- Fitness?
 - US Navy Seals
 - French Navy
 - Israeli military
 - Triathletes
- High BP



TREATMENT



- Breathless
- Get out of water
- Oxygen
- MAD DOG

Pulmonary Edema Management

"MAD DOG"

M-Morphine

A-Aminophylline

D-Digitalis

D-Diuretics (Lasix)

O-Oxygen

G-Gases (Blood Gases ABG's)



www.nursebuff.com



57 cases recorded in 2014

Data analysis indicates:-

25% involve repeat diving



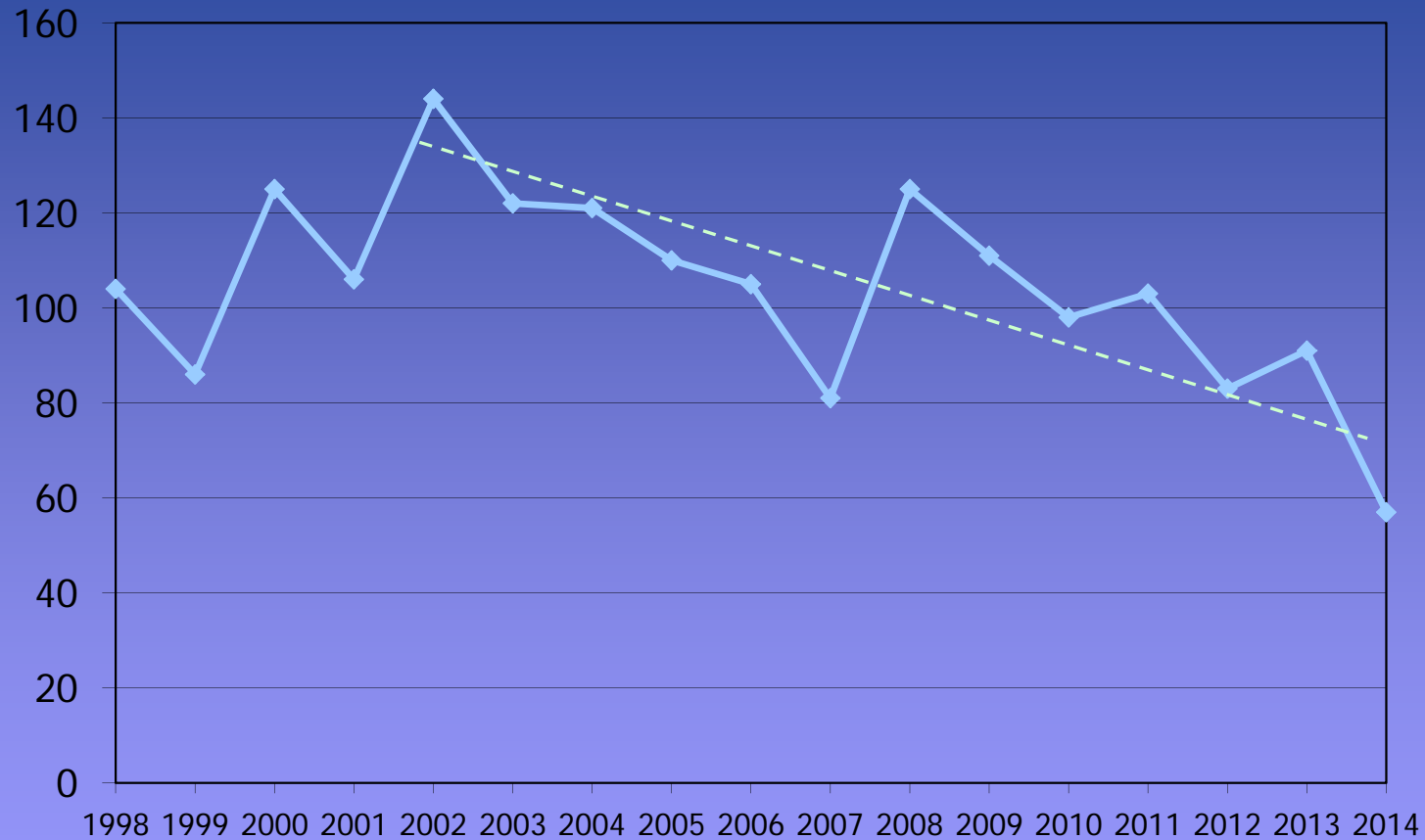
24% involve rapid ascents



19% involve depths greater than 30m

7% involve missed decompression stops

Decompression Illness



ONGOING ACTION



- LIASON with BHA
- Data synch
- Similar decline
- Context of UK treatments
- Treatment or DCI?
- UK or holiday
- HELIUM





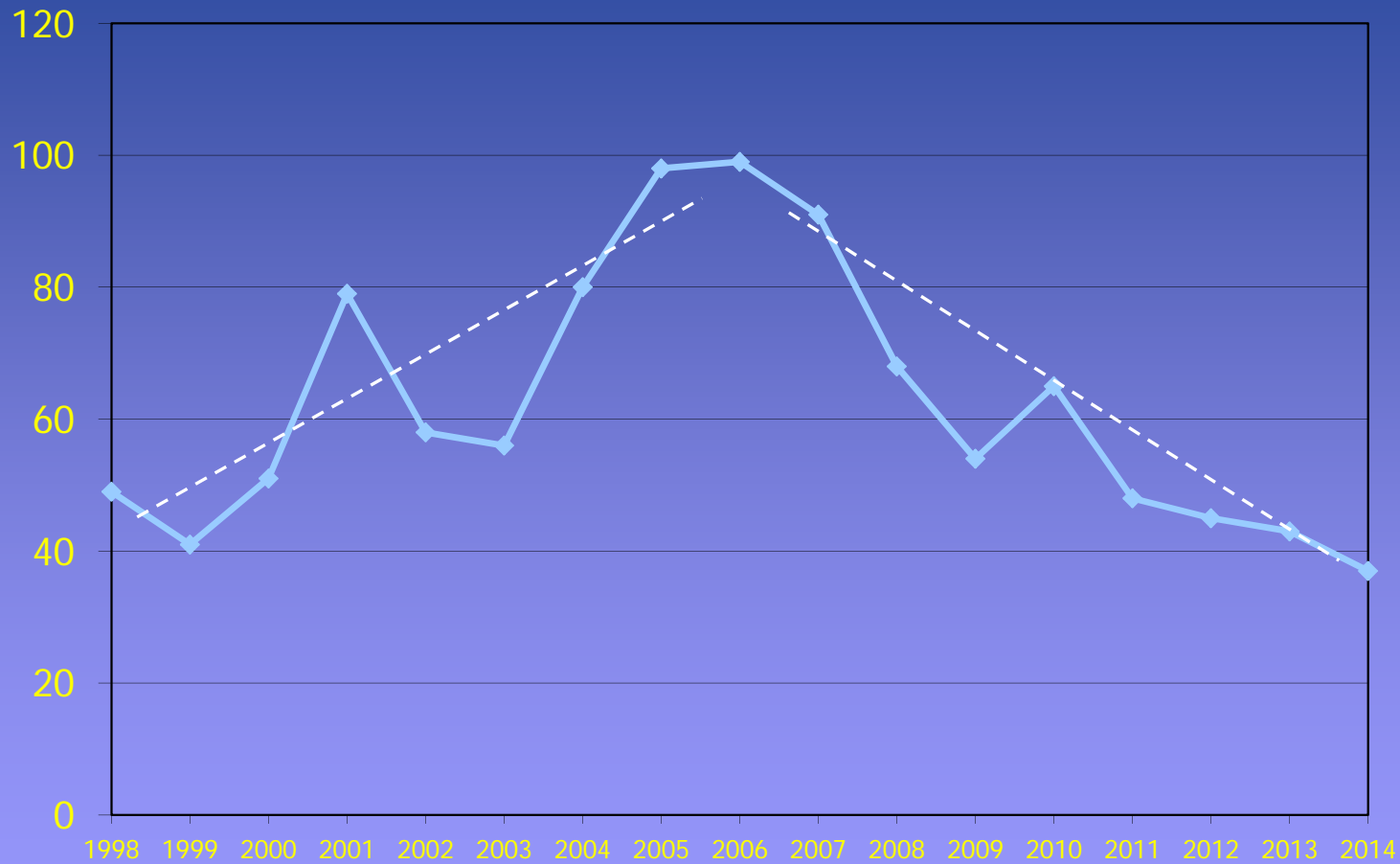
37 ascent related incidents reported (certainly a lot more)

- 22 Rapid ascent
- 14 Missed stops

Causal factors

- 36% Panic
- 27% Poor buoyancy control
- 23% Delayed SMB problems
- 9% Free flowing regulators
- 5% Drysuit controls problems
- 5% Out of gas
- 5% Weights or weighting issues

Ascents





12 cases of 'Engine Problems'

- Mainly engine failure

3 cases of 'Boat Problems'

- Struck object
- Swamping

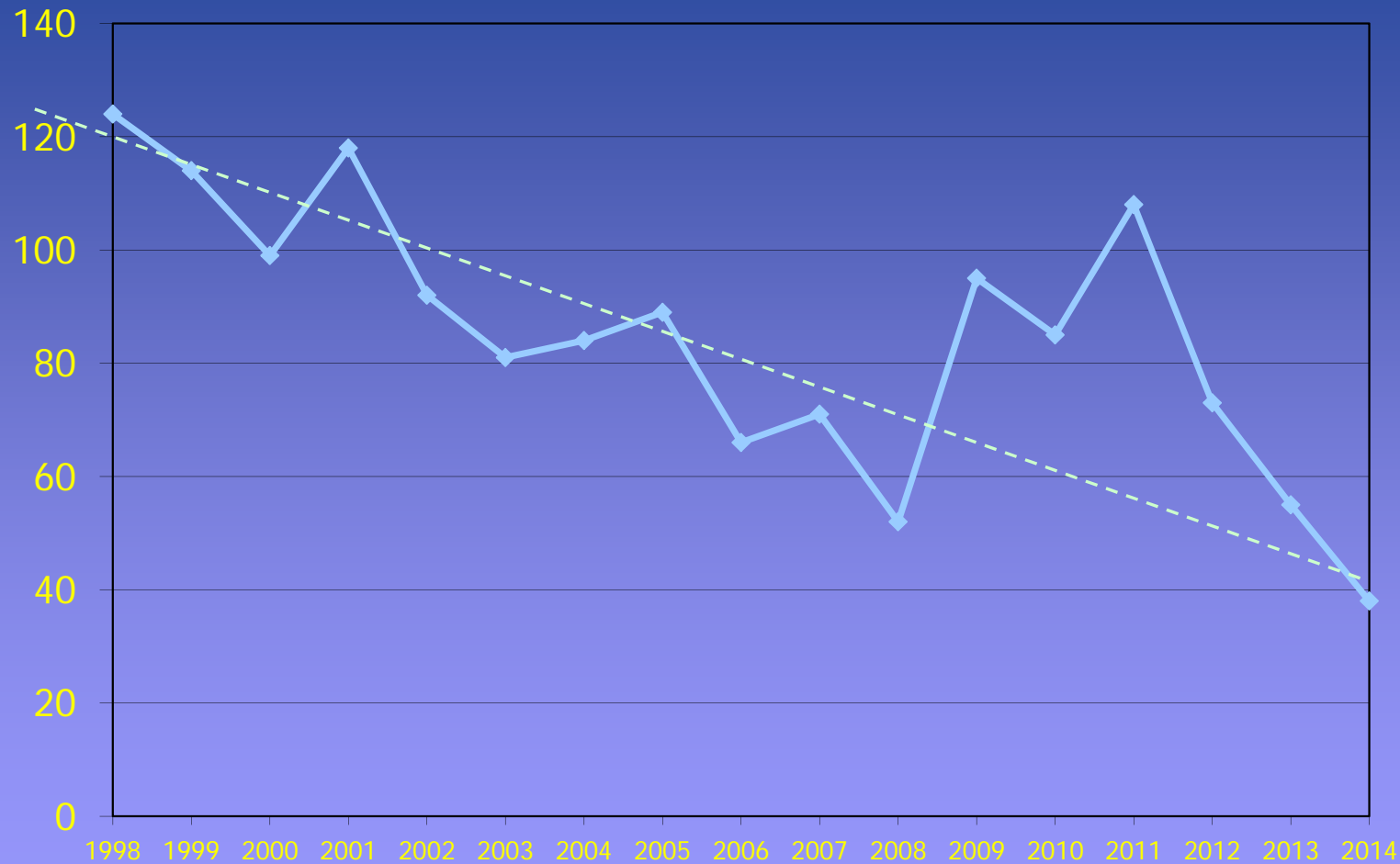
1 cases of 'Bad Seamanship'

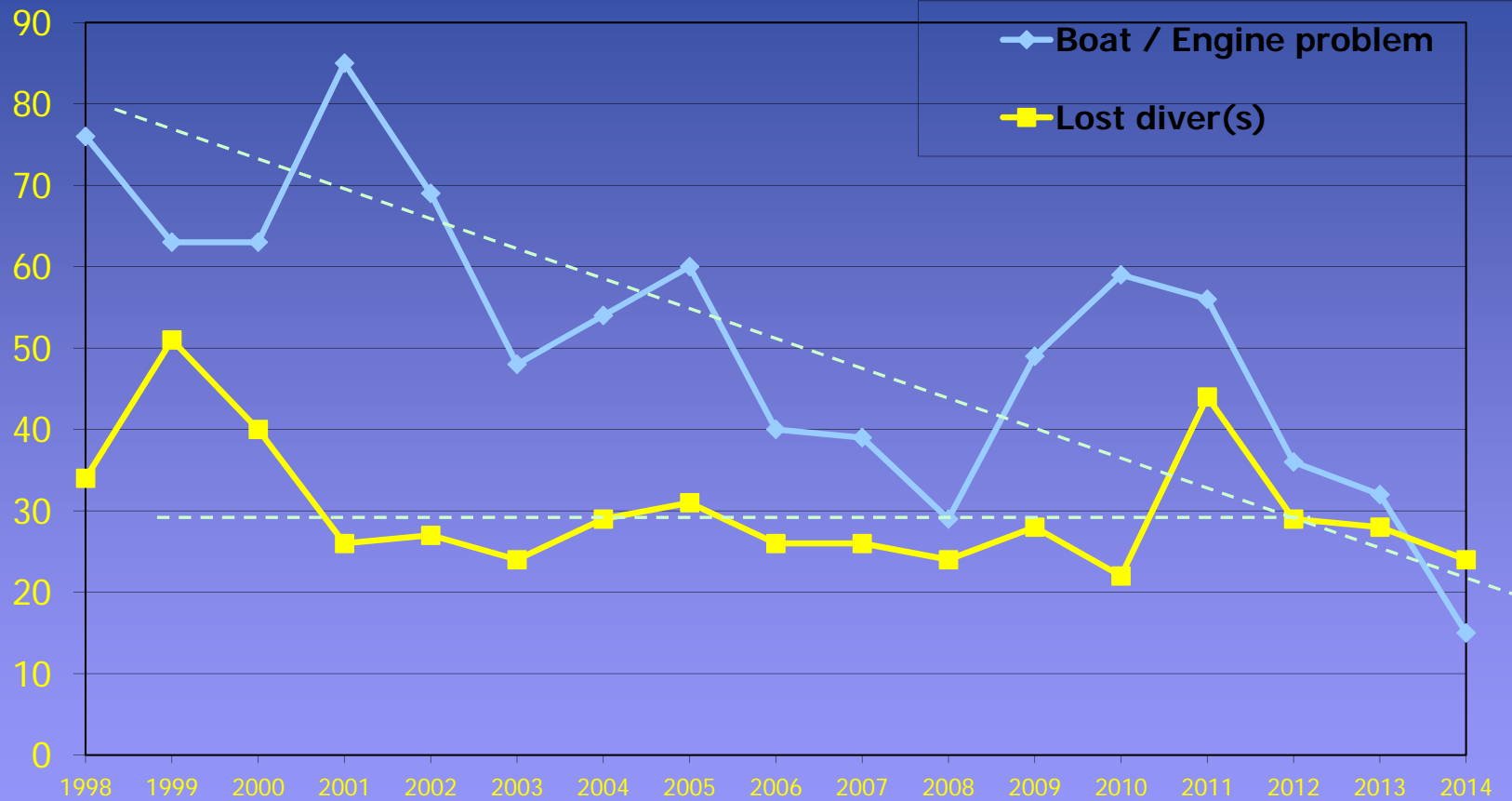
- Diver hit by boat's propeller

24 cases of lost diver(s)

38 in TOTAL

Boating and surface





Brian Cumming



“There are numerous examples of where better dive management might have prevented incidents; these range all the way from trivial to fatal.

Examples include: lost divers; divers overdue; poor buddy checks; inappropriate depths and conditions etc. It is however very difficult to quantify this; we don't, for instance, have a specific 'tick box' for poor dive management.”

Regulation 28



Coroners Inquest

Who, where, when &
How

Regulation 28
recommendation

Requirement to
respond

Conclusions on 2014



- 16 UK fatalities – in line with previous average
- The increase in ‘older diver’ fatalities is fully explained by the diving population demographics
- The question is – how do we respond to this?
- The number of incident reports has been falling for several years
- It seems very probable that this fall is due (at least in part) to less incidents taking place
 - Buoyancy training has reduced ascent incidents & cases of DCI
 - Boat/engine related incidents have fallen significantly
 - The number of ‘lost diver’ cases is unchanged

ONGOING WORK

EVIDENCE BASE
COLLABORATION
UNDERSTANDING
EDUCATION
PLANNED CHANGE
EVOLUTION





NO GOOGLES – 90%

NO EAR DEFENDERS – 78%

NO GLOVES – 20%

EVOLUTION TAKES TIME