

New developments in anchoring

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September 2020

Content

- The need for good anchor gear
- What works
- Rope or chain?
- Anchoring trials
- New anchoring method?
- Anchoring noises...





Traditional anchor types



CQR style



Delta



Fortress and Danforth

New Generation anchors

Rocna



Manson

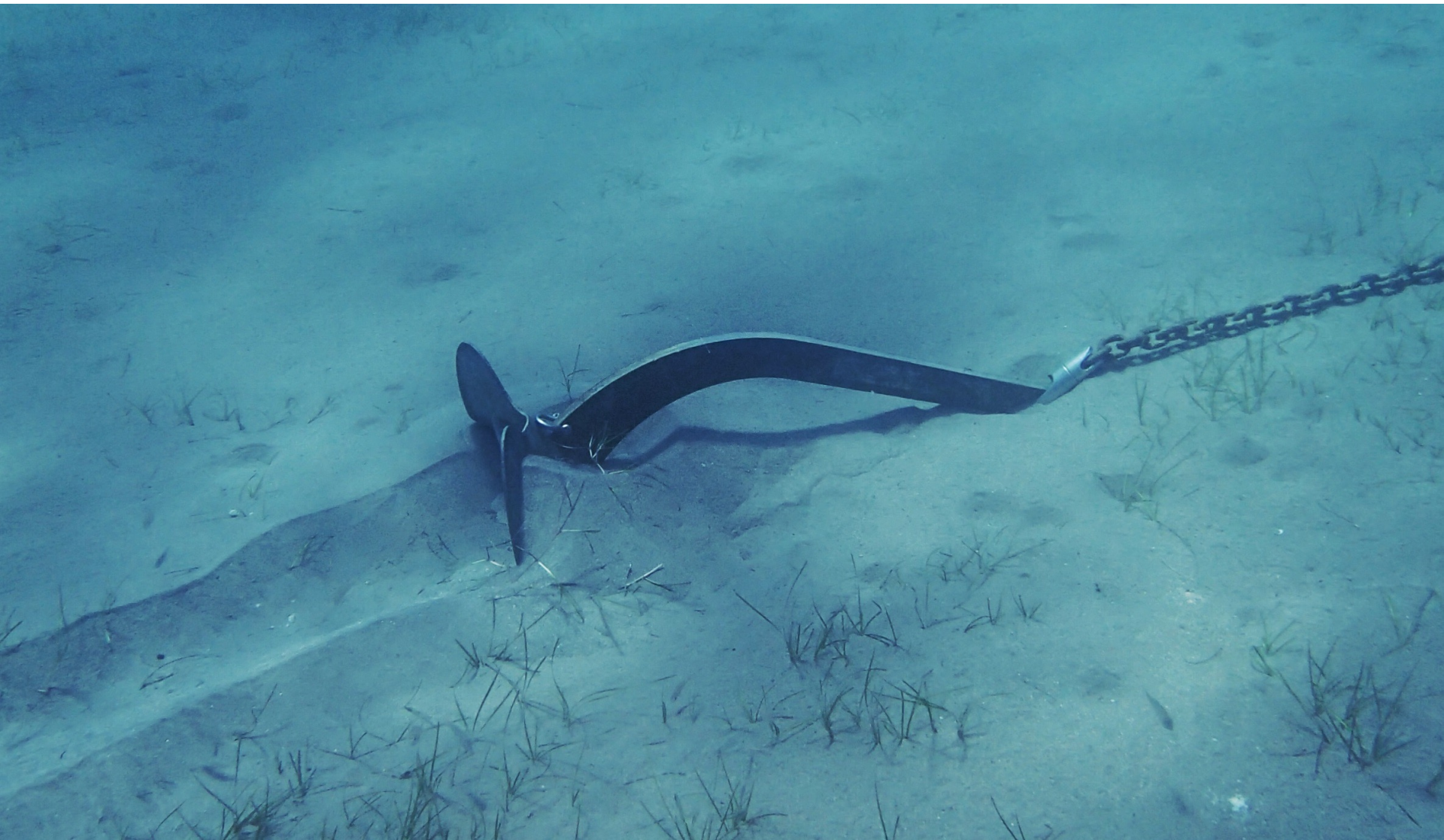


Mantus



Spade





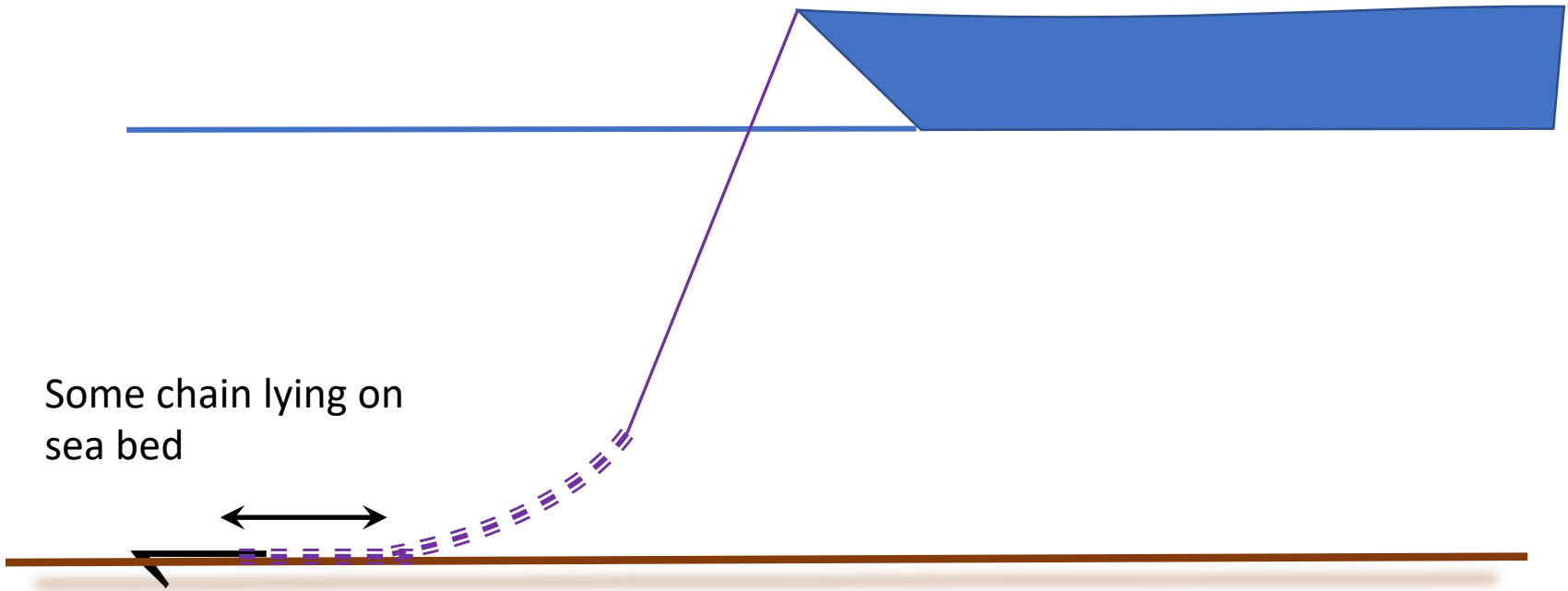
Anchor scope calculation

15m plus double-the-depth

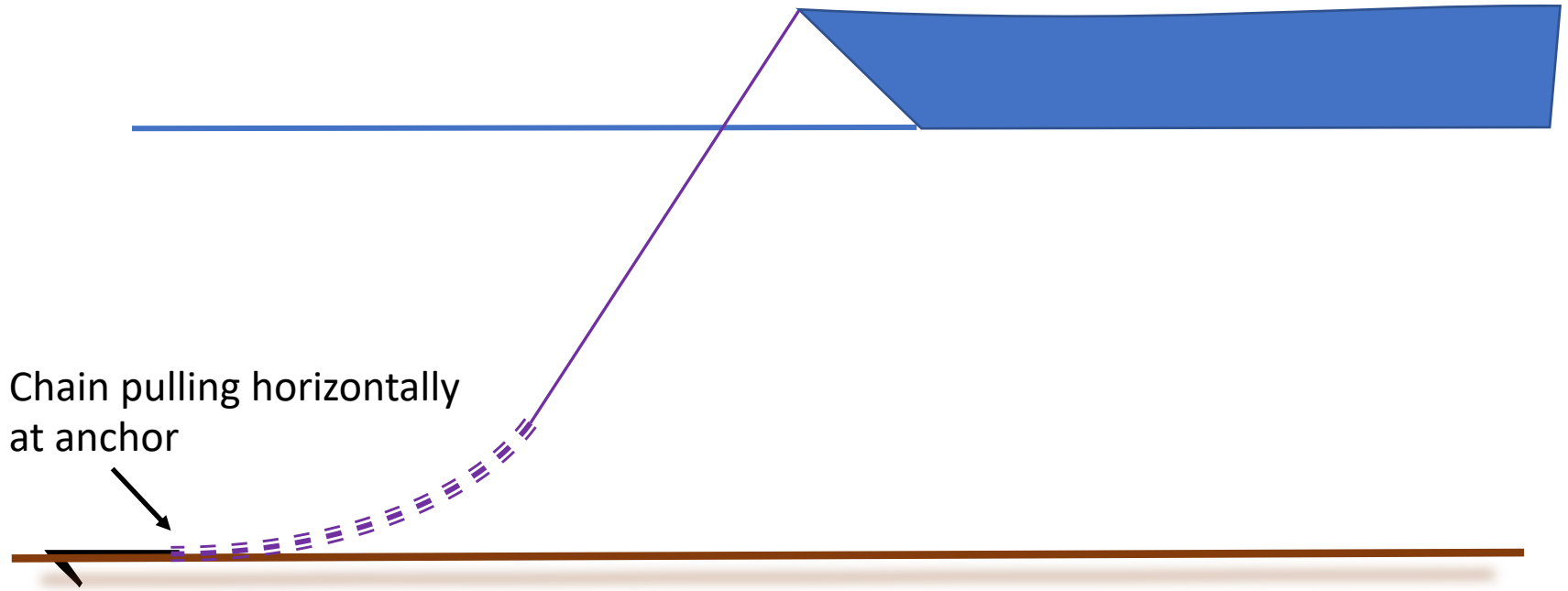
15m for the horizontal chain close to the bottom

Double-the-depth for steeper chain closer to the boat

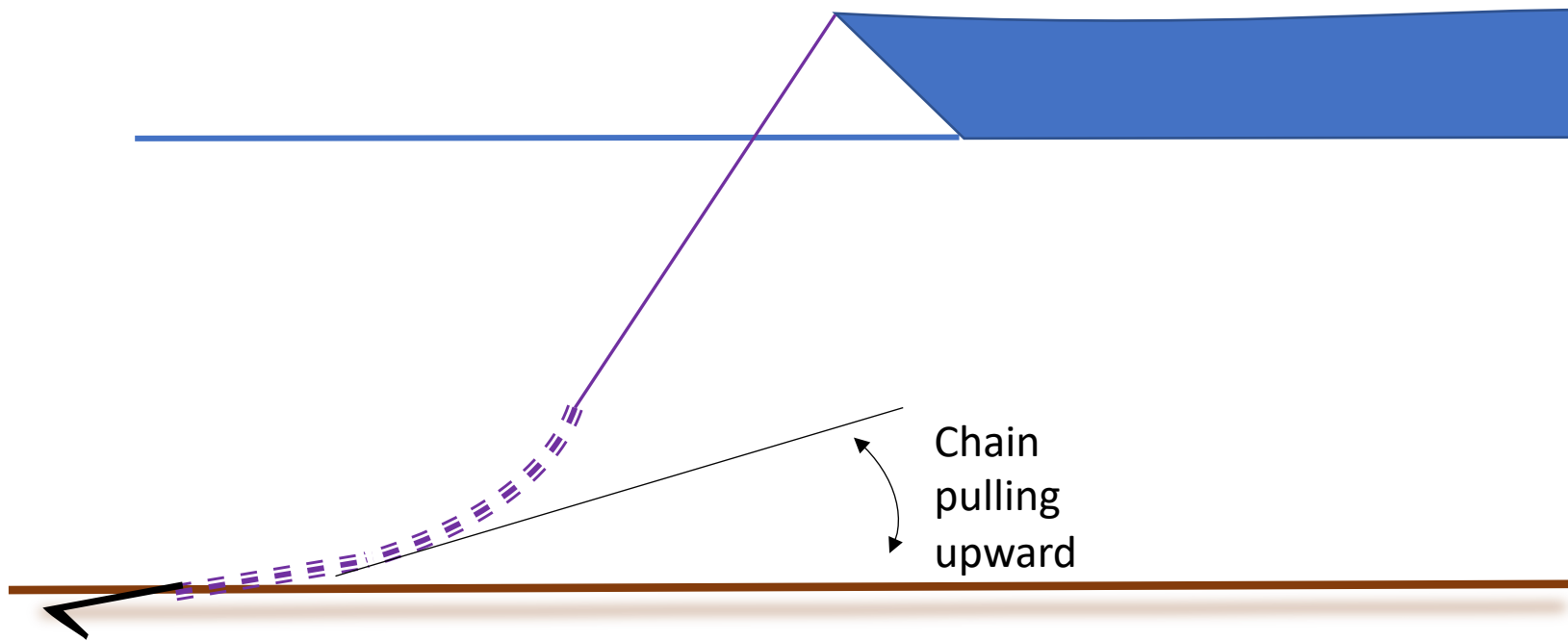
Always add extra 10m if it's rough



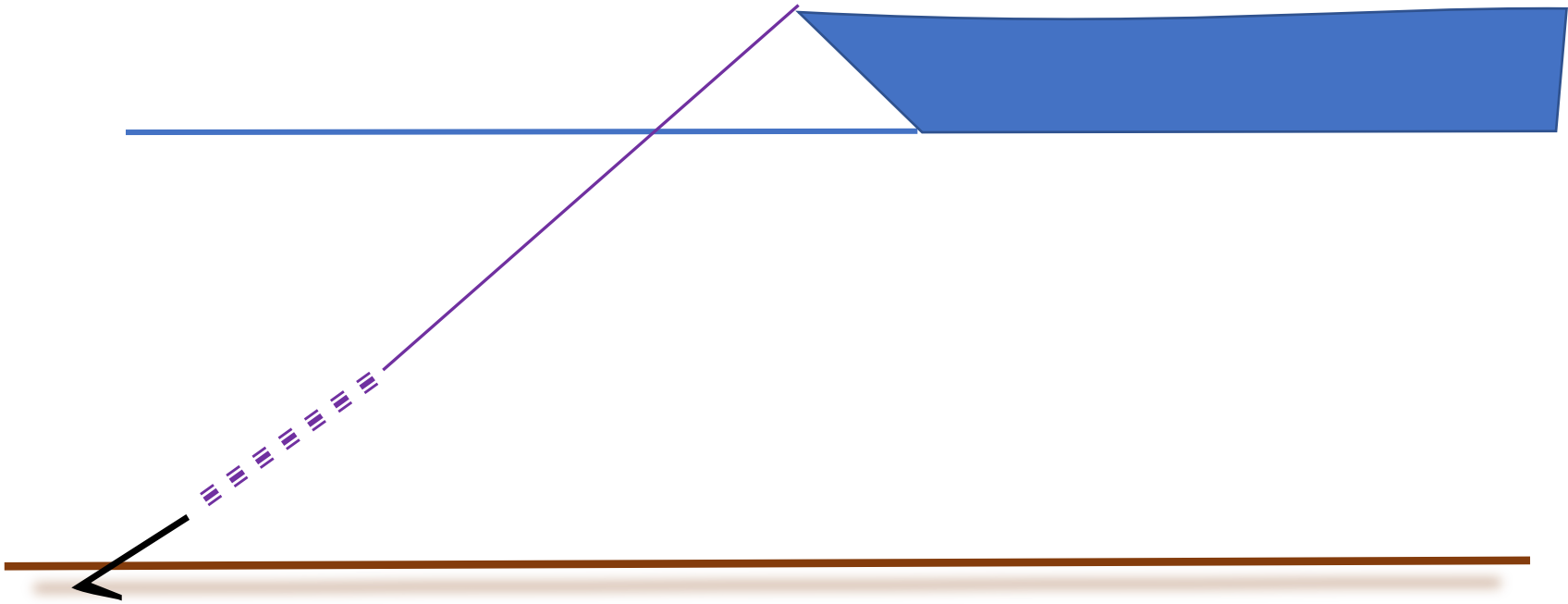
Some chain lying on
sea bed



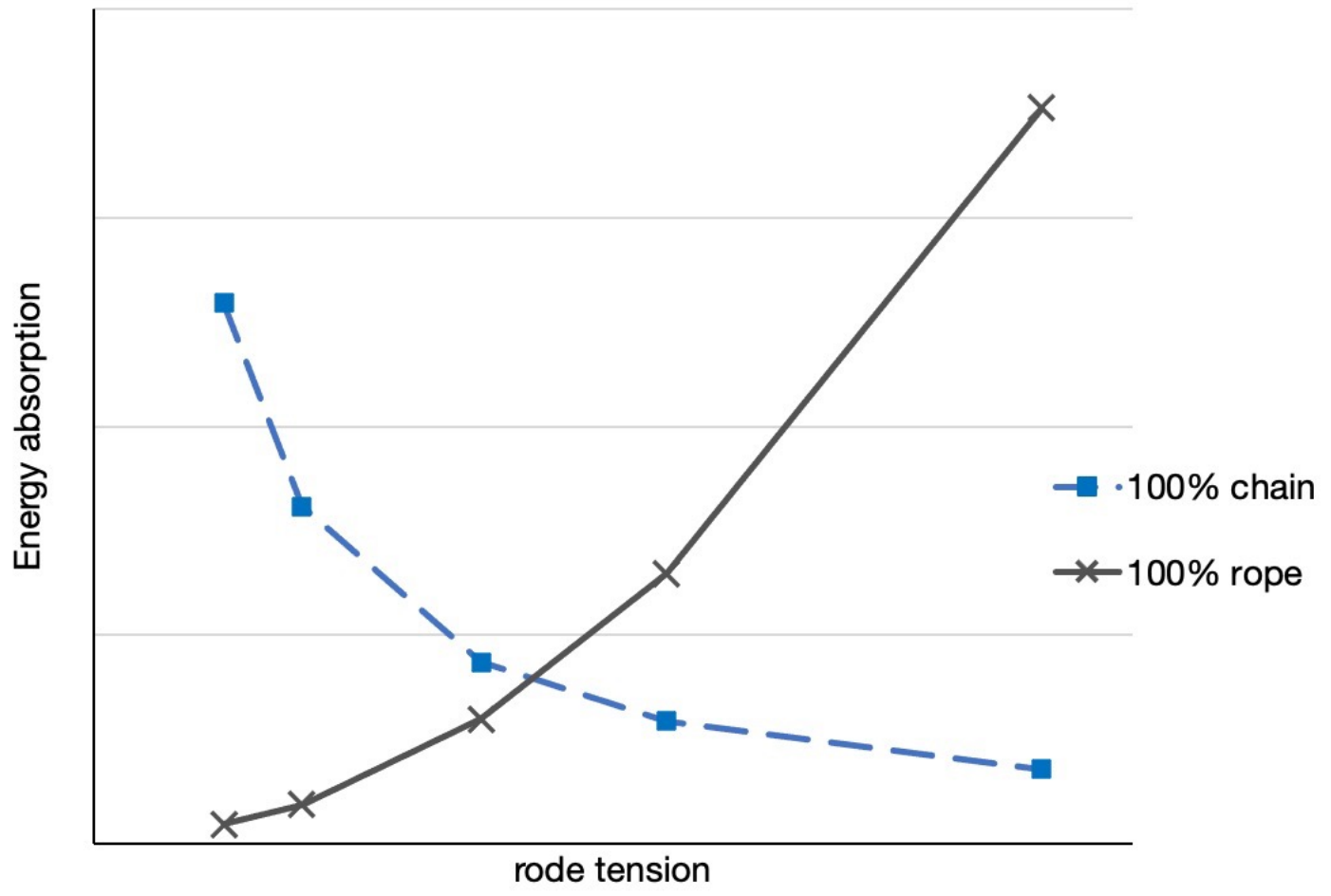
Chain pulling horizontally
at anchor



Chain
pulling
upward

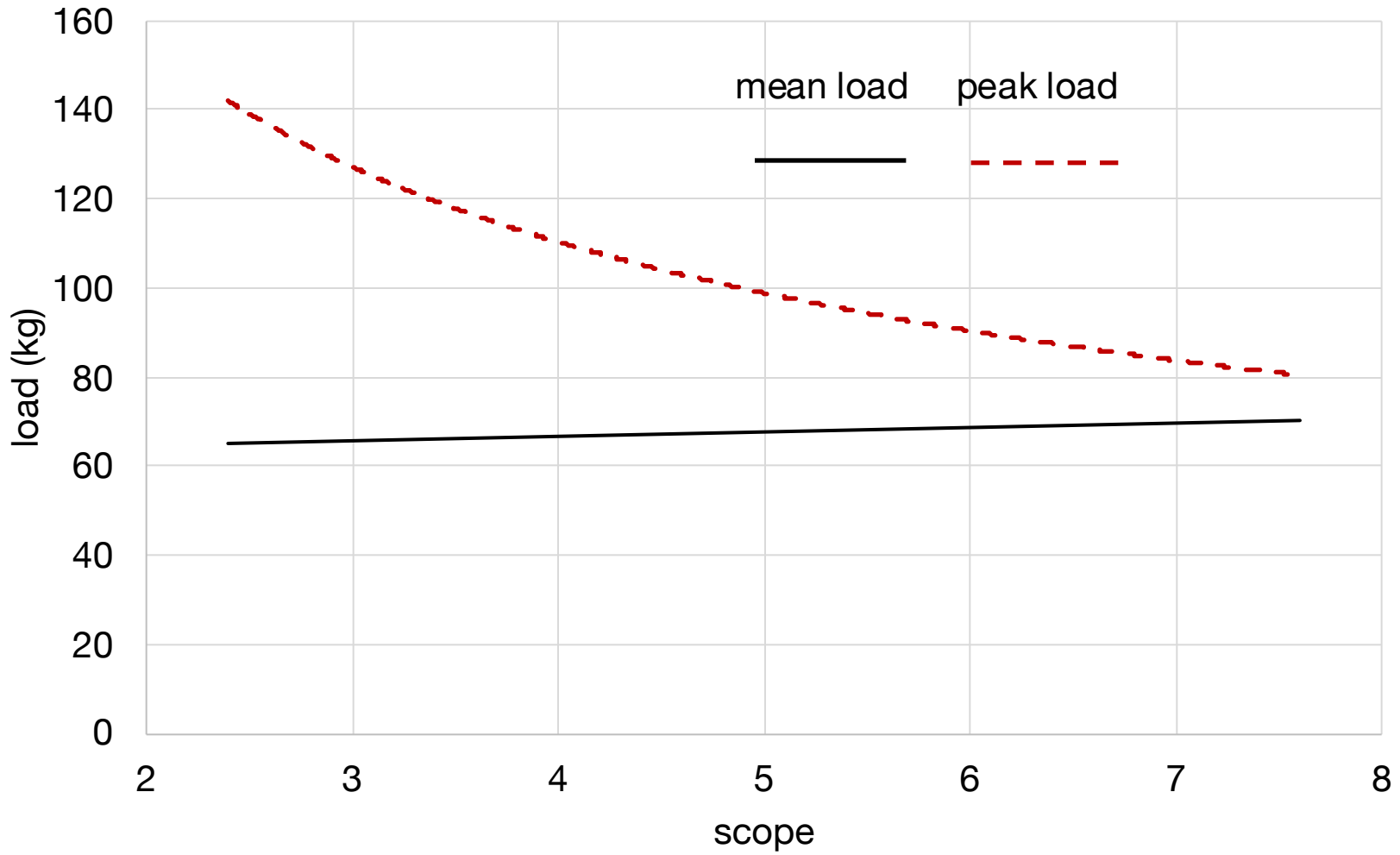


Energy absorption from slack to taut

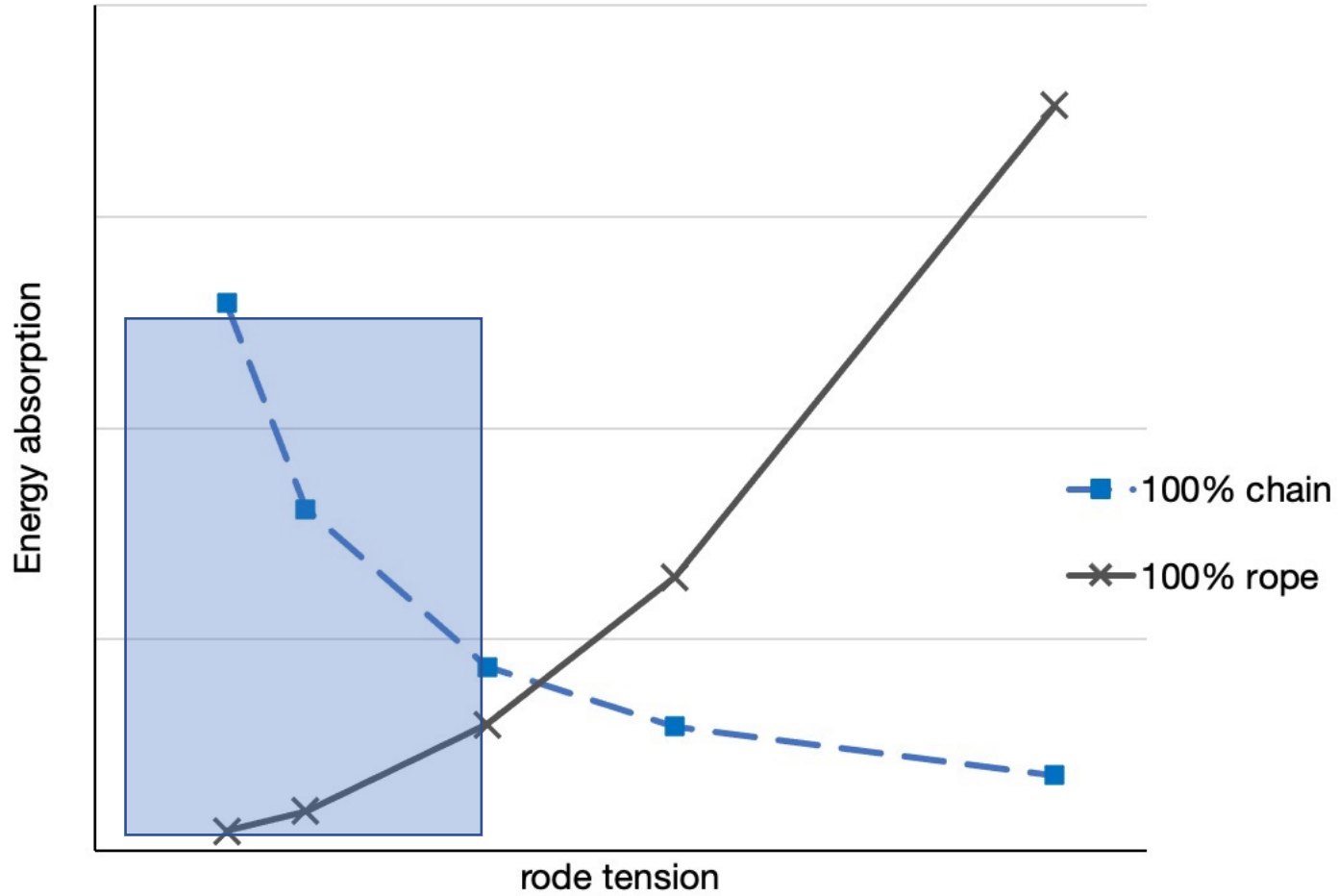


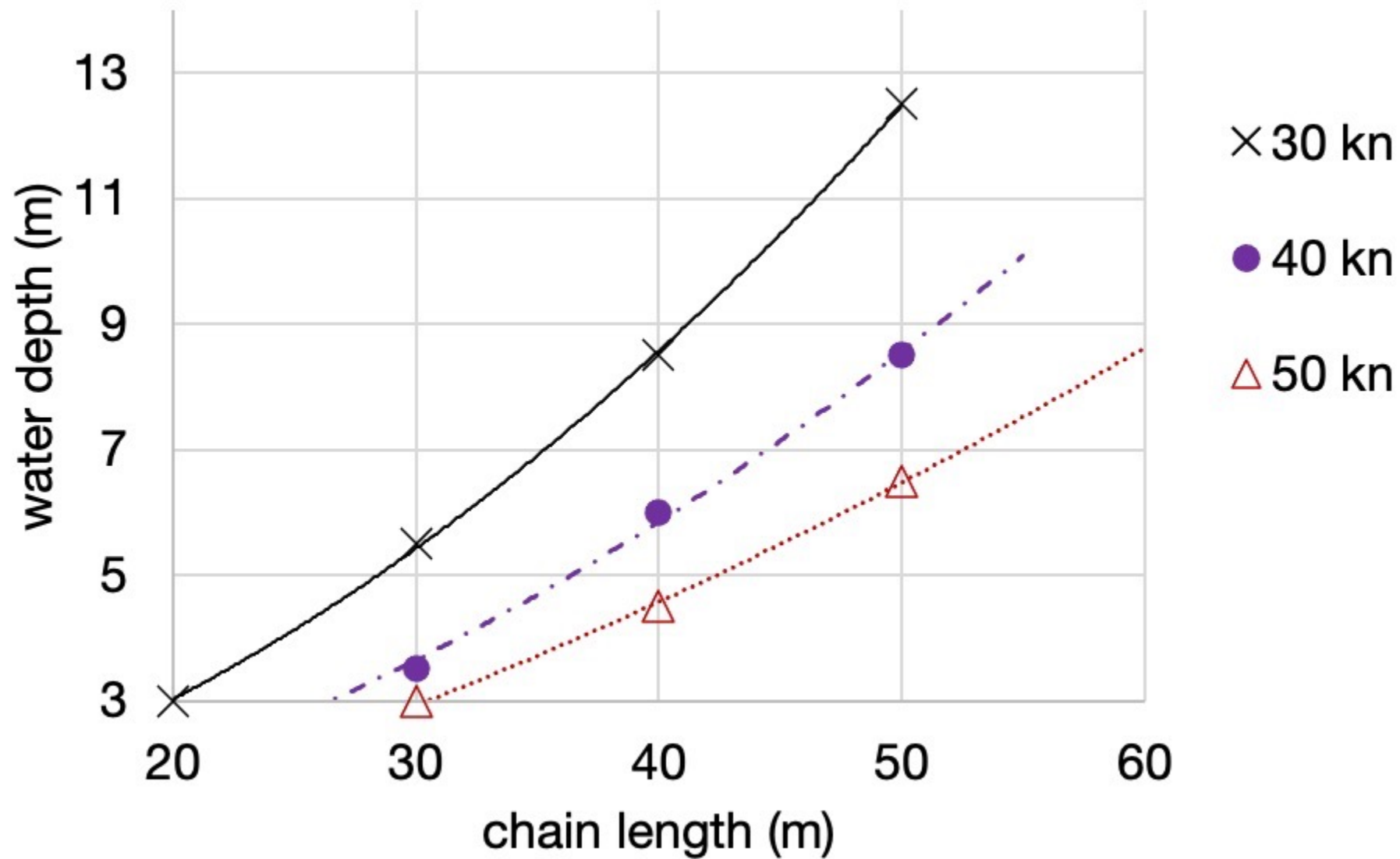


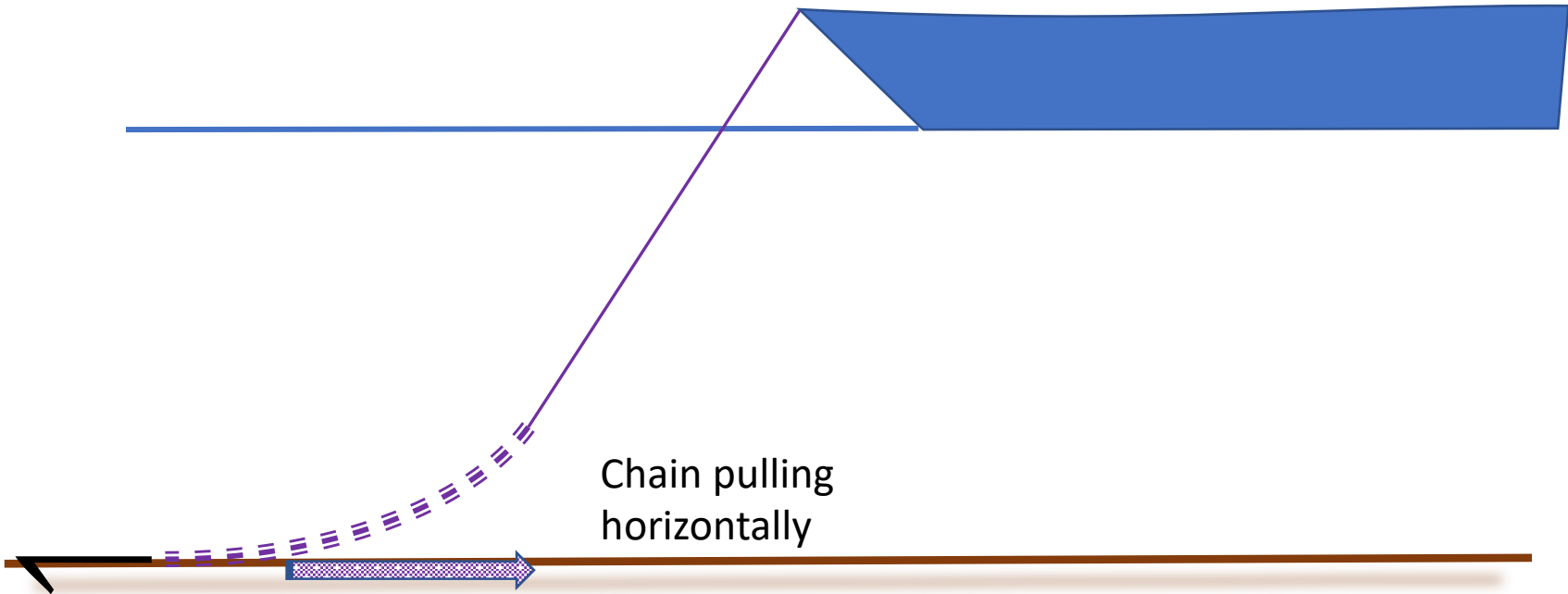
load v scope: 40ft yacht



Energy absorption from slack to taut







Chain pulling
horizontally

Holding power in sand 25kg anchor

20th century

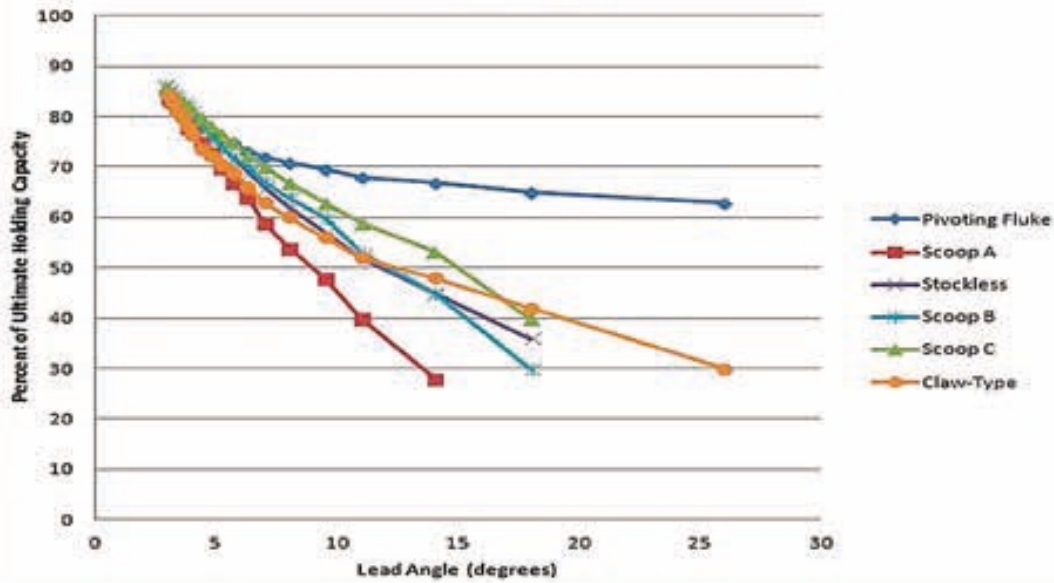
Delta	CQR
675kg	310kg

21st century

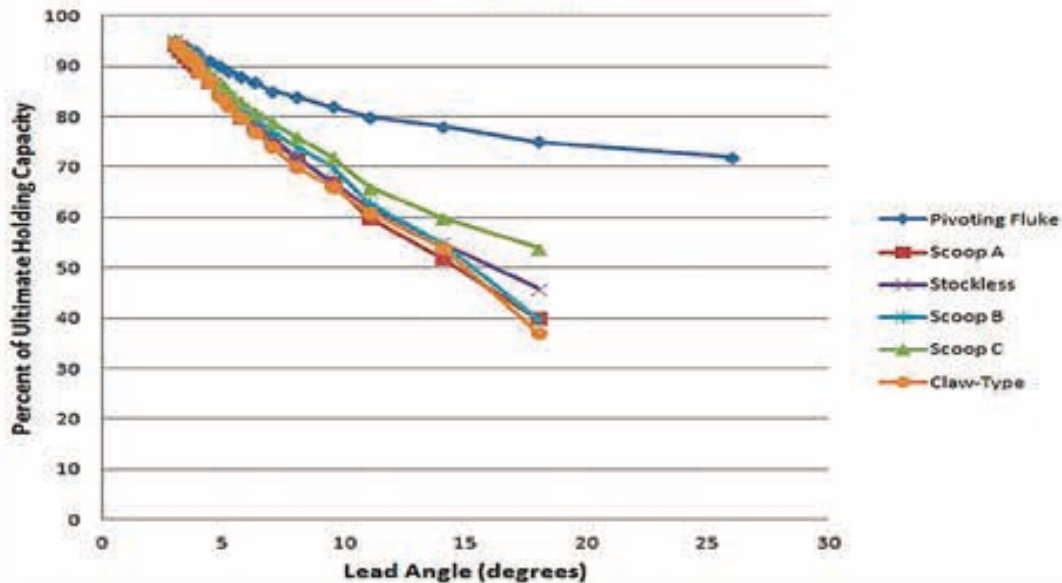
Manson	Spade
1600kg	2850kg

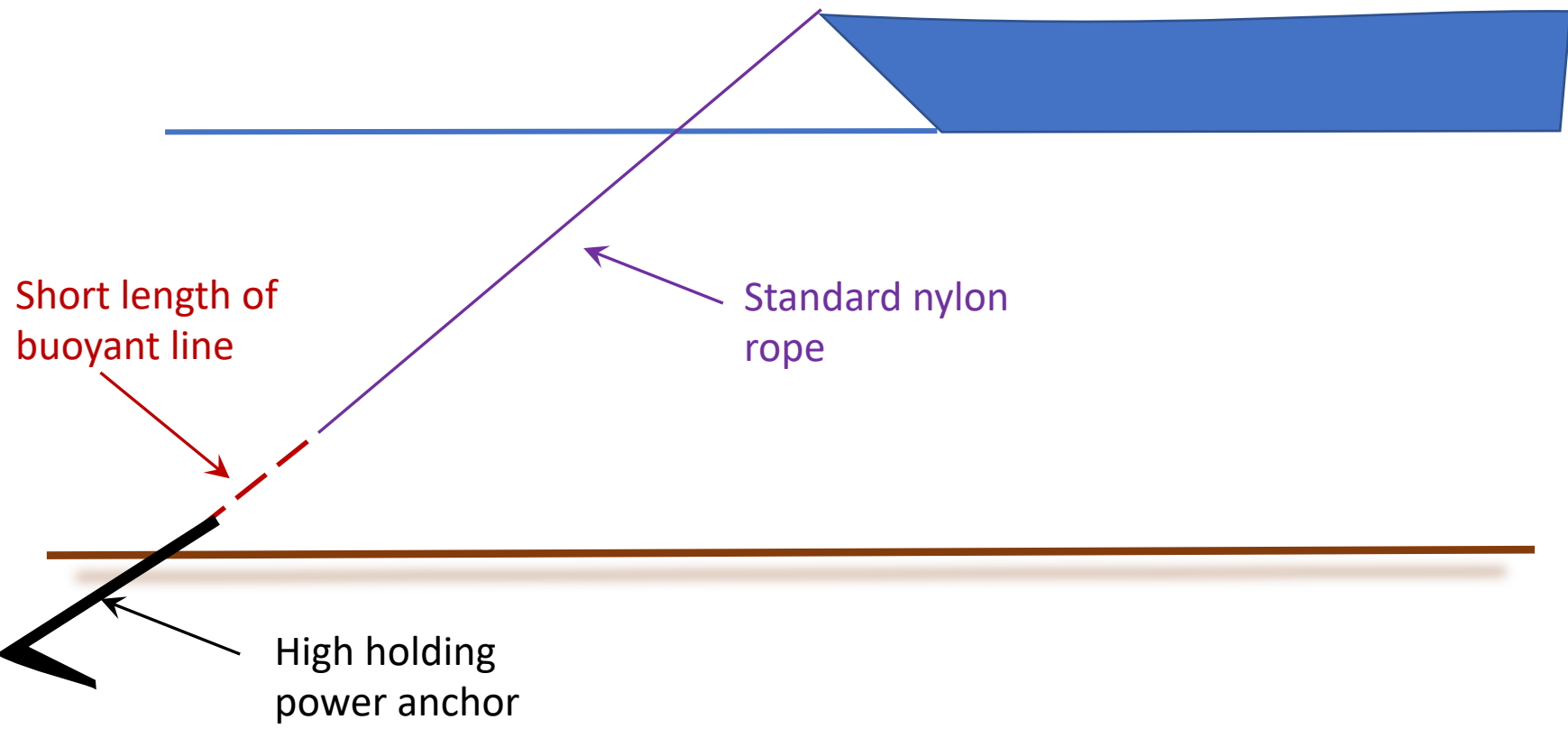
Max load on anchor in 50kn wind = 470kg

**Holding Capacity vs Lead Angle
Soft Mud**



**Holding Capacity vs Lead Angle
Fine Sand**





Short length of buoyant line

Standard nylon rope

High holding power anchor

	All chain (kg)	All rope (kg)
Anchor (Super Sarca)	25	42
Chain (60m x 10mm)	145	0
Rope (100m x 16mm)	0	15
Snubber	5	0
Windlass & battery	30	0?
Bow roller mods	0	5
Total	205	70

	All chain (\$)	All rope (\$)
Anchor	750	1100
Chain (60m x 10mm)	1080	0
Rope (100m x 16mm)	0	
Snubber	30	0
Windlass & battery	2000	2000 (0?)
Bow roller mods	0	500
Total	3860	3600

Engine in reverse to bed anchor in

- Half astern is same pull as 26 kn wind

Holding power

	Neeves	Hodges & Springer	Allisy	Sezerat	Gree
Britany			M	M	H
Claw/Bruce	(L)	L		L	M/L
CQR	(L)	L	L	H	M
Delta	(L)	M/H	M	M	
Fortress		H	H	L	H
Kobra	(H)		H	H	
Manson		H	H		
Oceane		H			
Rocna		H			
Sarca	(H)	M			
Spade	(H)	H	H	H	
Wasi Bugel		M			
West Marine Performance 20		L			
Fisherman	(L)				L

L= Low holding power: M = Medium: H = High

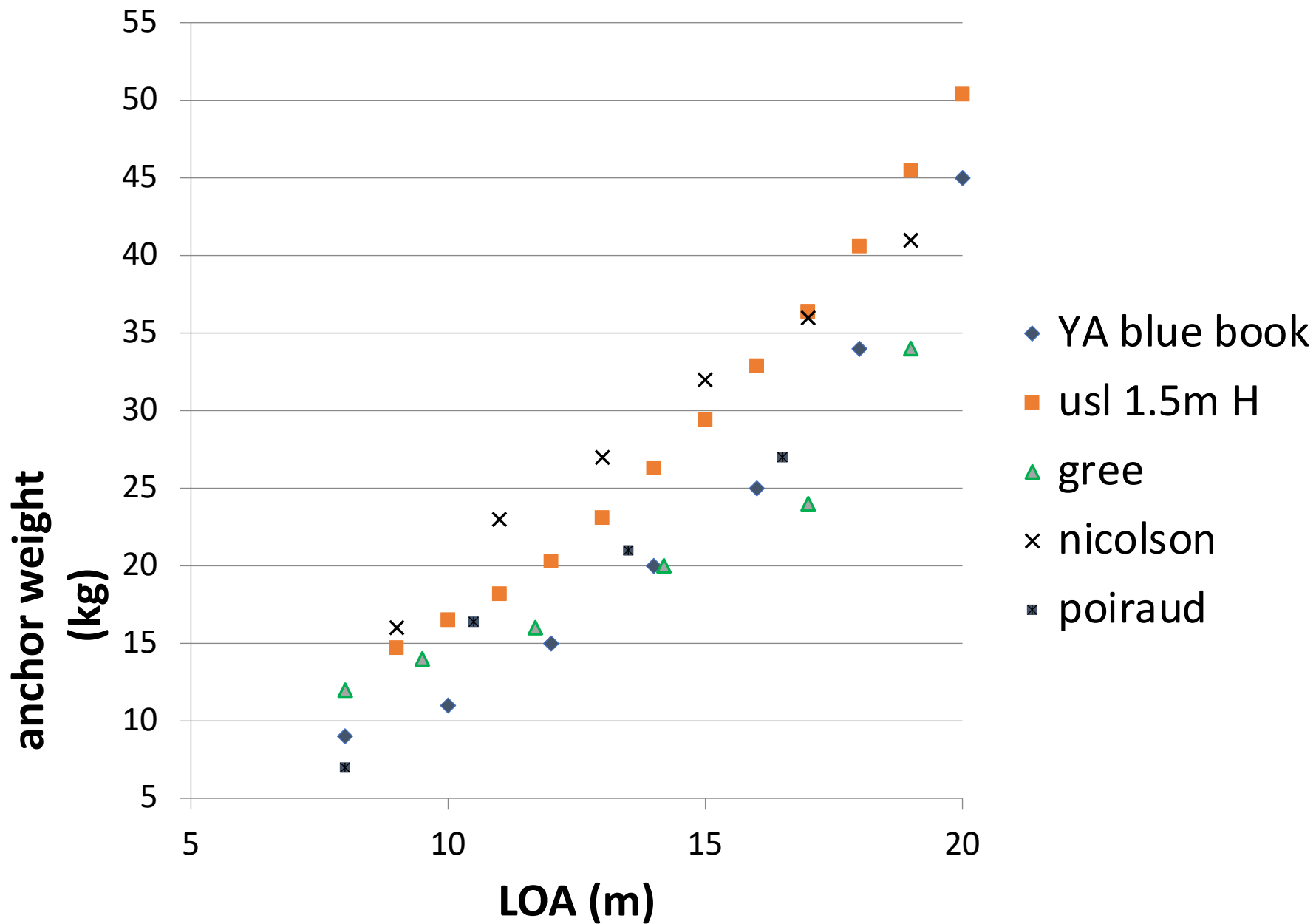
Re-setting

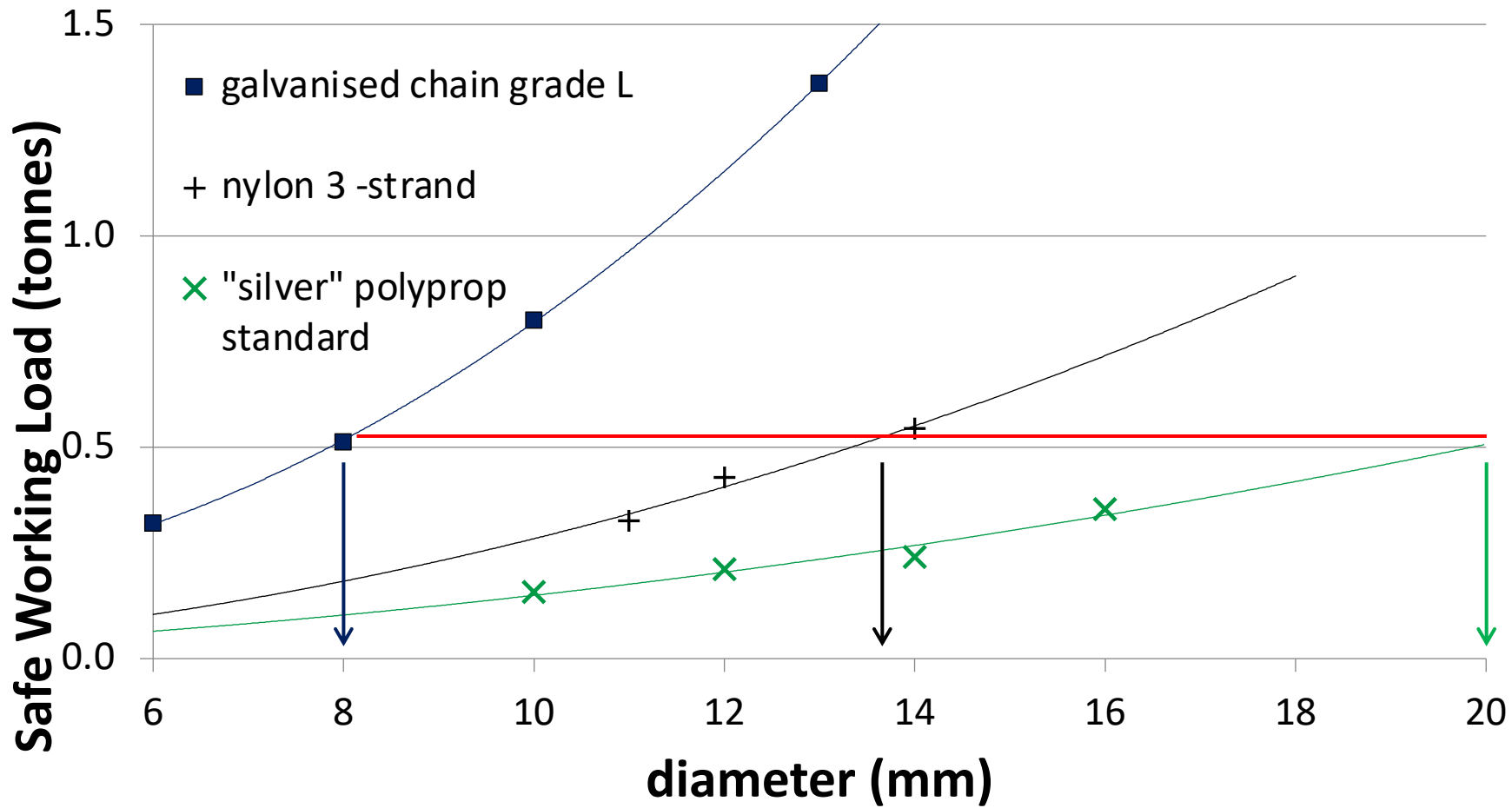
	Neeves	Hodges & Springer	Allisy	Sezerat	
Britany			A		
Claw/Bruce	P	P		P	
CQR	P	P	P	P	
Delta	A/G	A/G	A/P		
Fortress		G		P	
Kobra	G		G	G	
Manson		G	G		
Oceane					
Rocna	A	G			
Sarca	A/G	G			
Spade	G	G	G		
Wasi Bugel					
West Marine Performance 20					
Fisherman	P				

P = Poor re-setting: A = Average: G = Good

Matching anchor to seabed

Seabed type	Hardness	Shear strength	Anchor type
Mud	Very soft – soft	Weak	flat are best, claw OK, plough not so good
Silt	Soft – medium	Medium	All Ok
Gravel	Soft (between pebbles)	Weak	New gen (large surface area + tip weight)
Clay	Medium	High	Heavy old ones and new gen
Sand	Medium-hard	Medium-high	New gen good. Flat and plough can skid on hard sand
Rock	Impenetrable	Very high	Fisherman
Weed	-	-	Difficult - Flat and/or sharp-tipped





End

- Link to Richard's anchoring YouTube video:

<https://www.youtube.com/watch?v=FOKVO3JBgDY>

(or just Google "Richard Macfarlane anchor")

- Link to Kim's yacht design book:

<https://books2read.com/u/mqrRL1>

(or just Google "Klaka yacht design")