



Integrated Weight Longlines with Paired Streamer Lines – Best Management Practice for Seabird Bycatch in Demersal Longline Fisheries

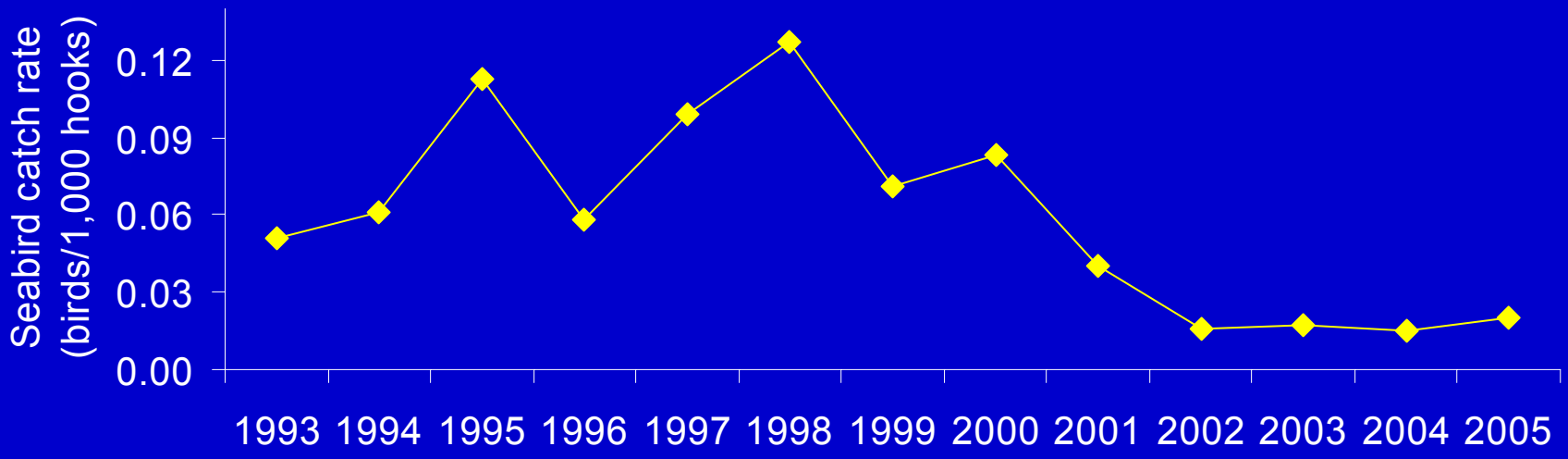
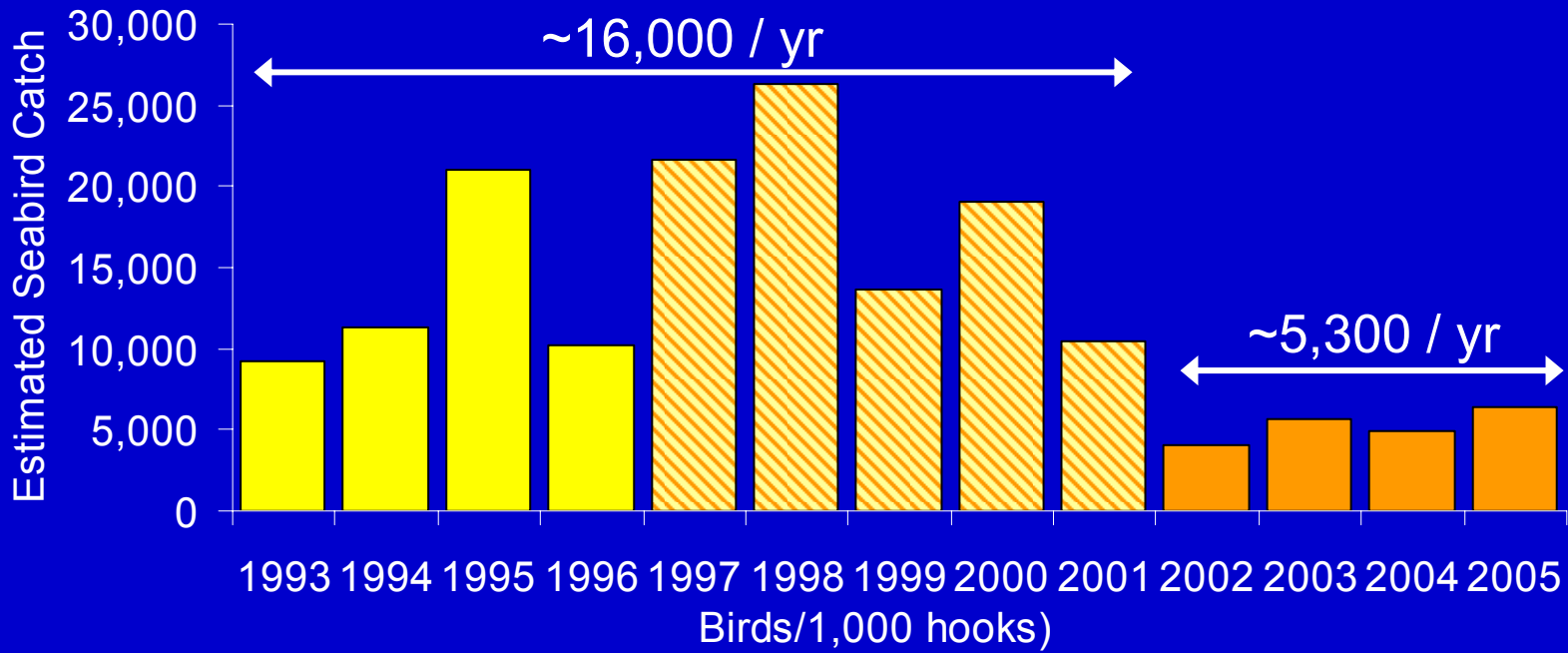


Kim Dietrich, Ed Melvin & Loveday Conquest

AFS Annual Meeting - Symposium 52: Developing Tools for Ecosystem-Based Fishery Management: Incentive Programs, Bycatch Quantification, and Gear Technology
September 4, 2007

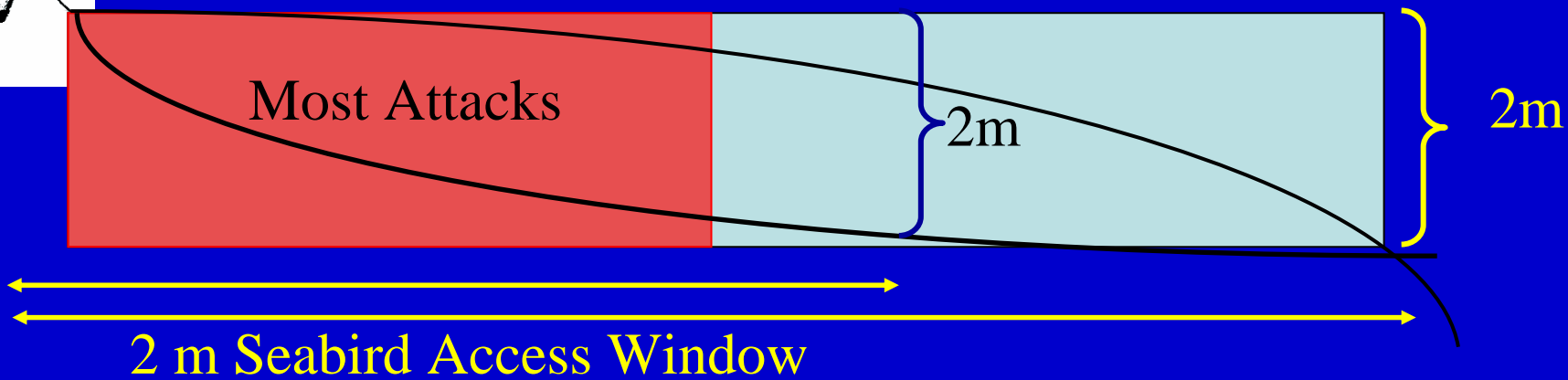
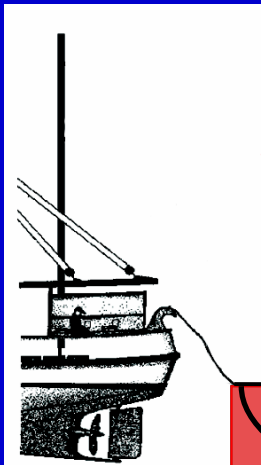








Integrated Weight Groundline





Objectives

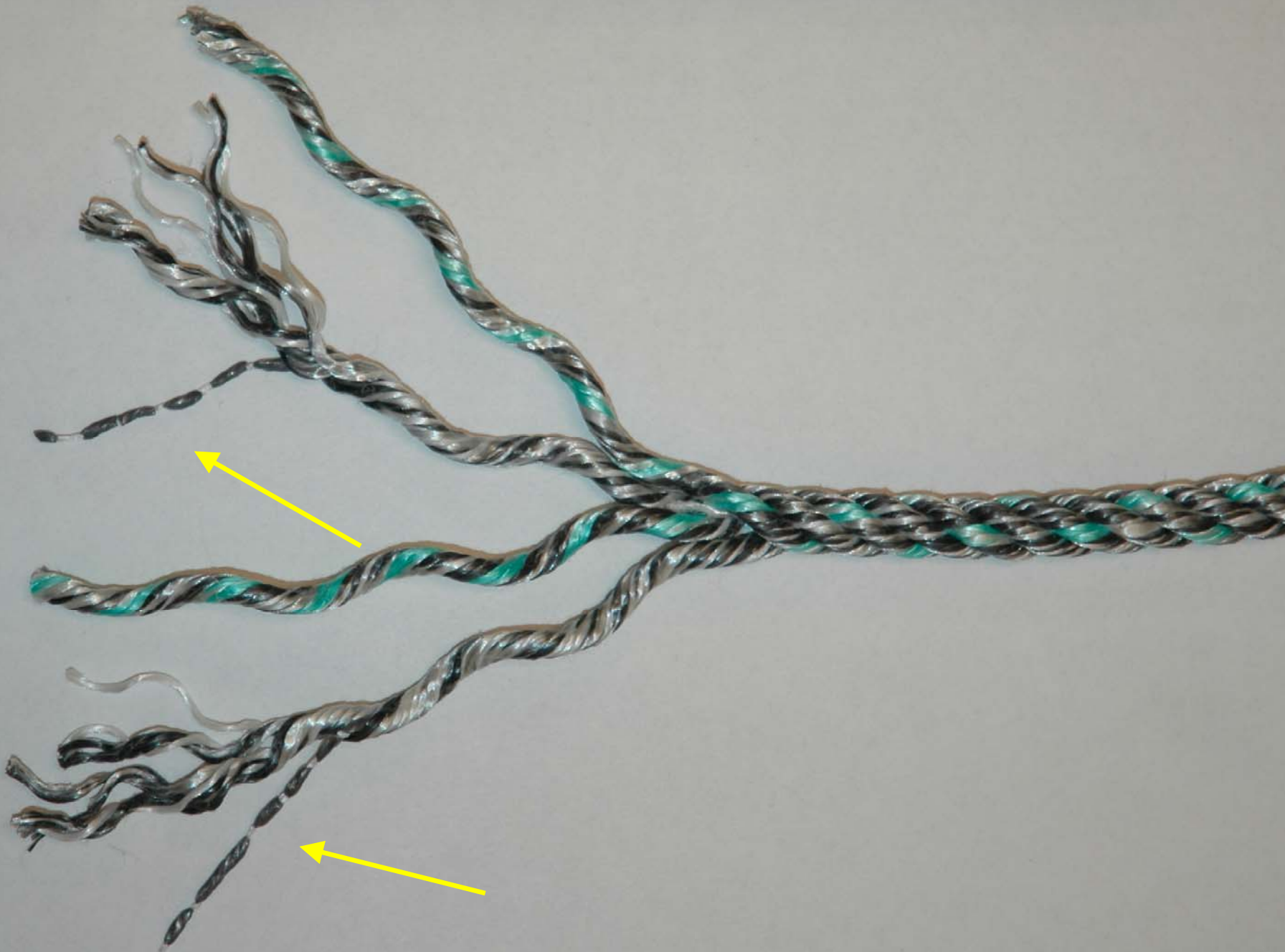
- Minimize seabird catch rates
- No negative impact on target catch
- No increase of bycatch of other taxa
- Evaluate using multiple criteria



Treatments

- Paired streamers (PS)
- PS + IW
- Integrated weight groundline (IW – 50 g/m)
- Control (UW; no deterrent)







Effort

Vessels	2
Time	Jul-Dec 2005
Target	P. cod
Location	Bering Sea
Hooks	13,009,697
Sets (Total)	651
% sets / hooks sampled	94% / 48%

Bird Mortalities (Total) **443**

N. fulmar	215
Gulls	173
Shearwater	49
Kittiwake	1
Laysan albatross	1
Unidentified	4

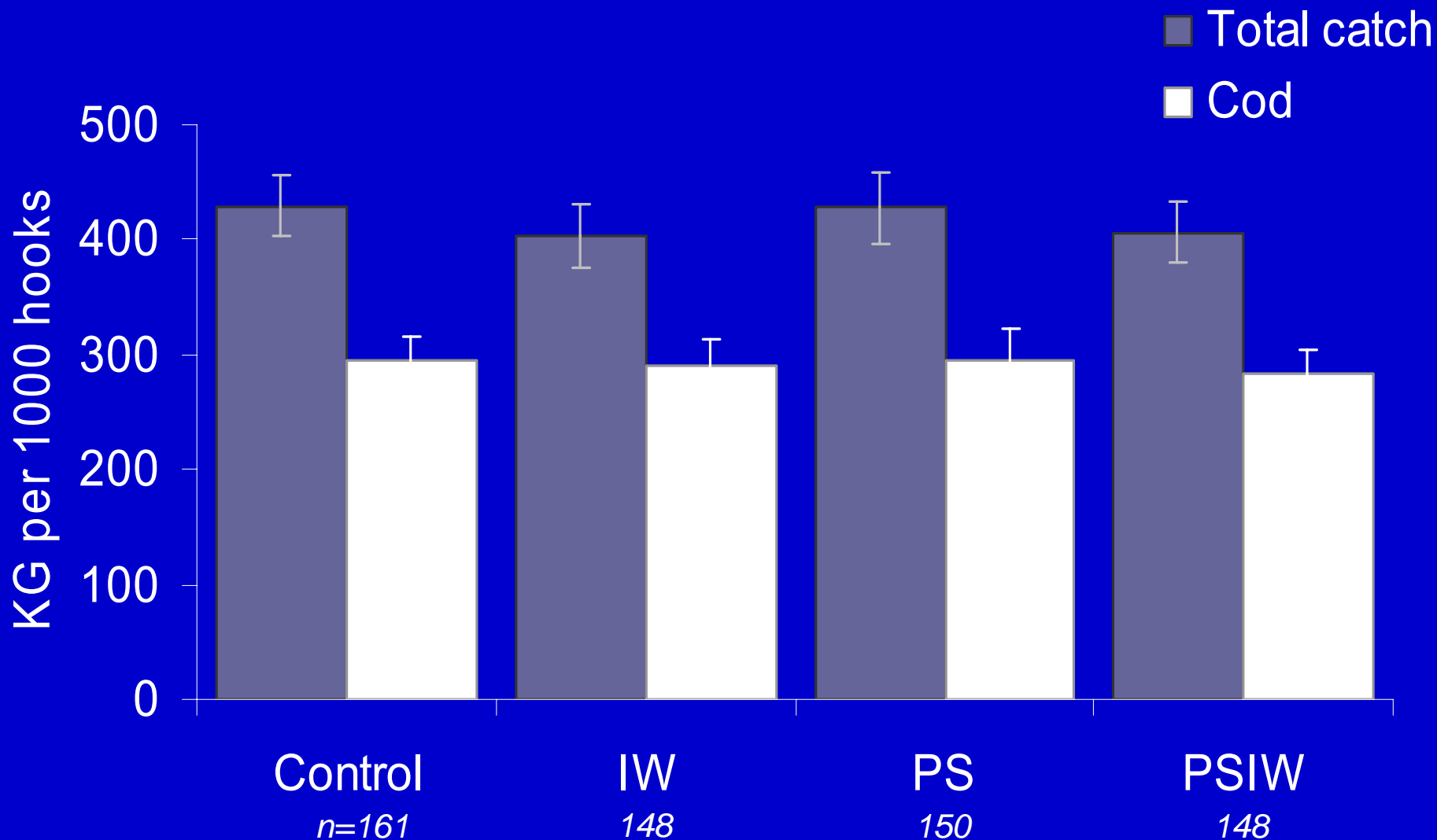


Analyses

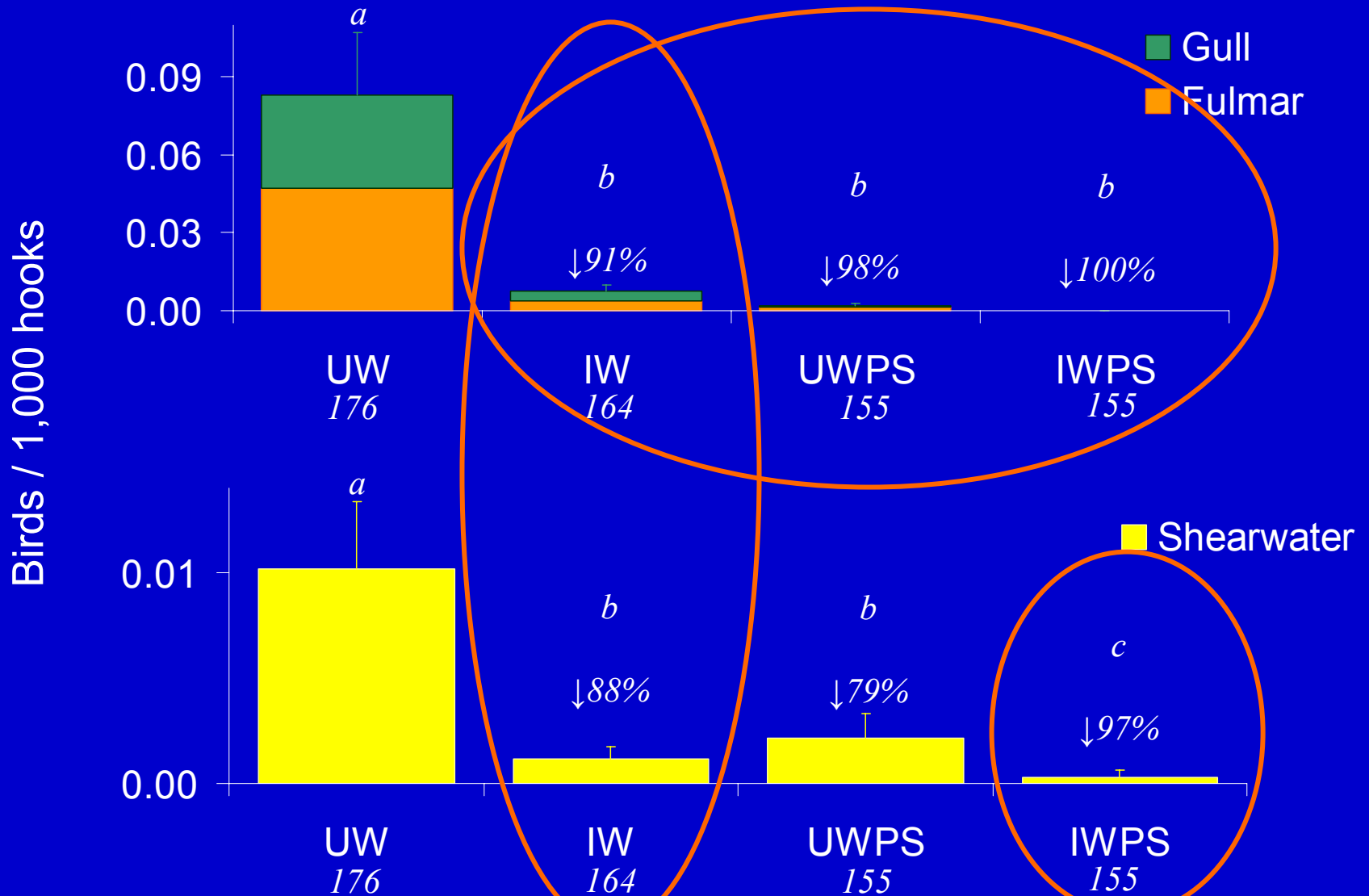
- Catch rates of birds & fish – GAM
- Abundance/attack rates – GLM
- Sink rates – LME
- Breaking strength – ANOVA



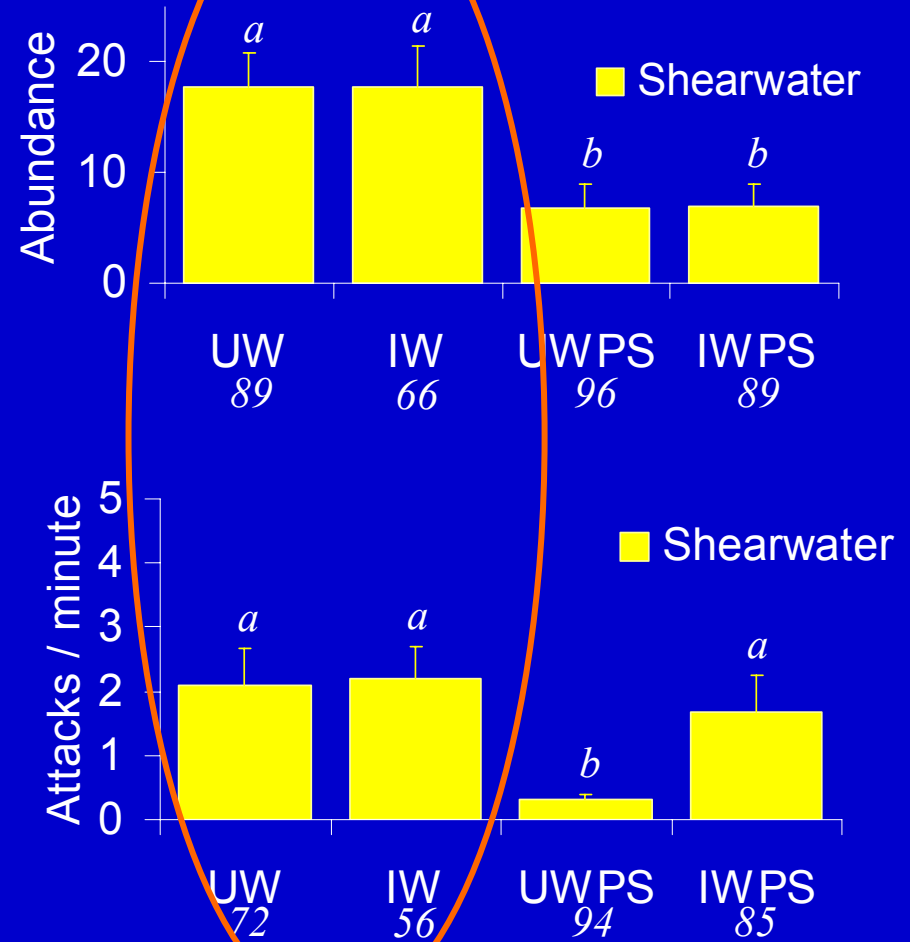
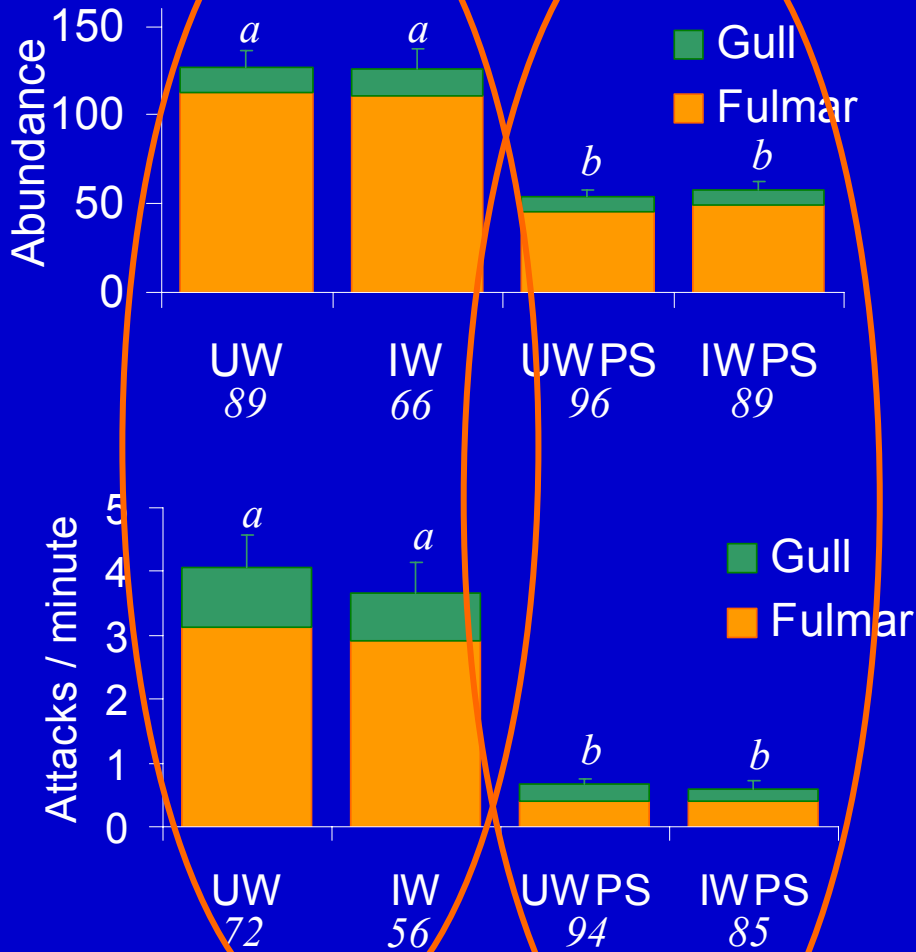
Treatment - Fish Catch



Treatment – Bird Catch

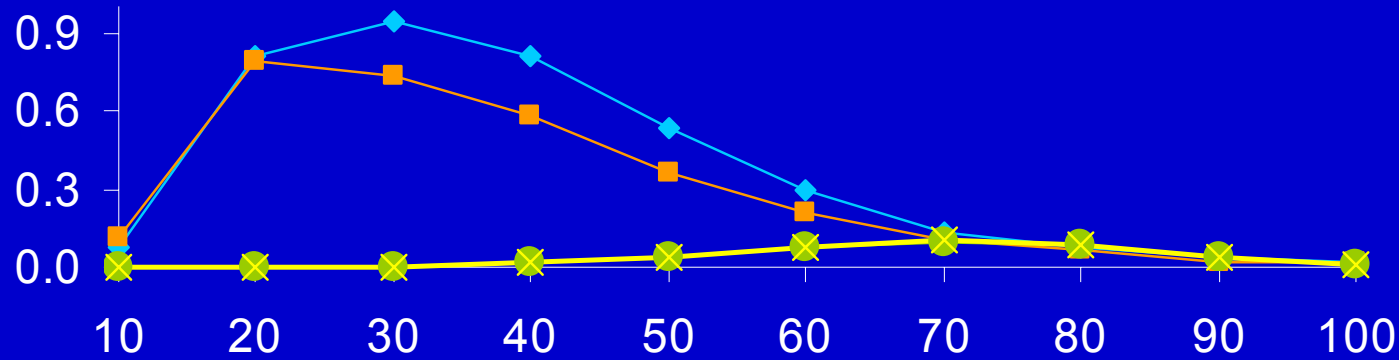


Seabird Abundance / Attack Rate

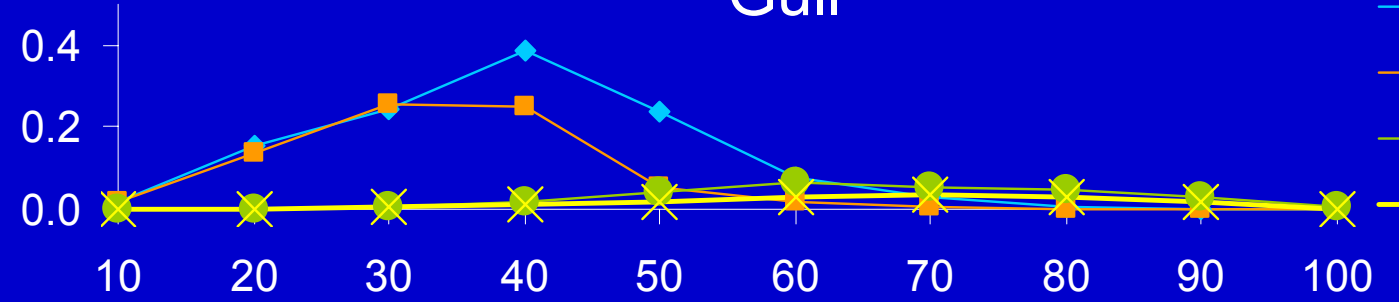




Northern Fulmar

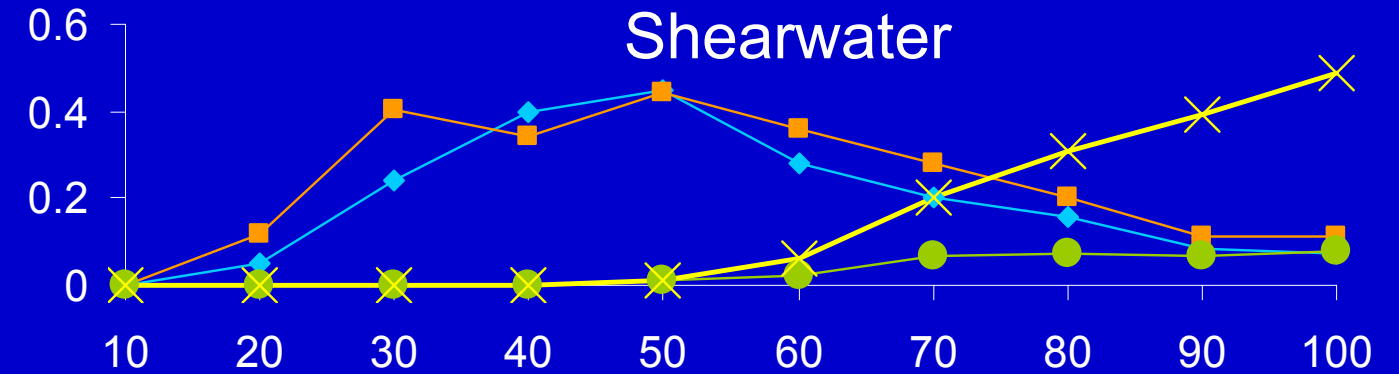


Gull



- Control
- IW
- PS
- IW + PS

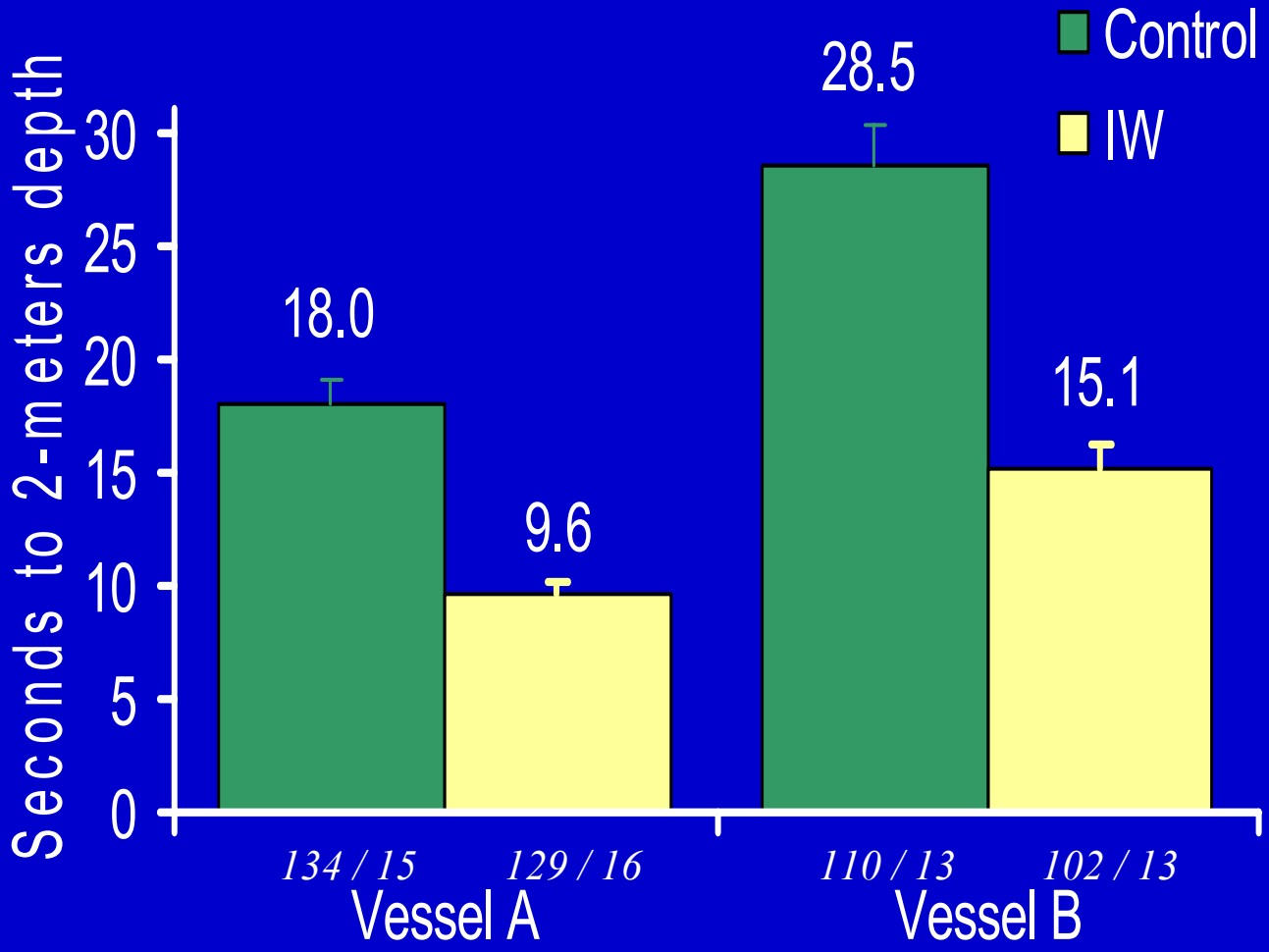
Shearwater



Distance astern (meters)

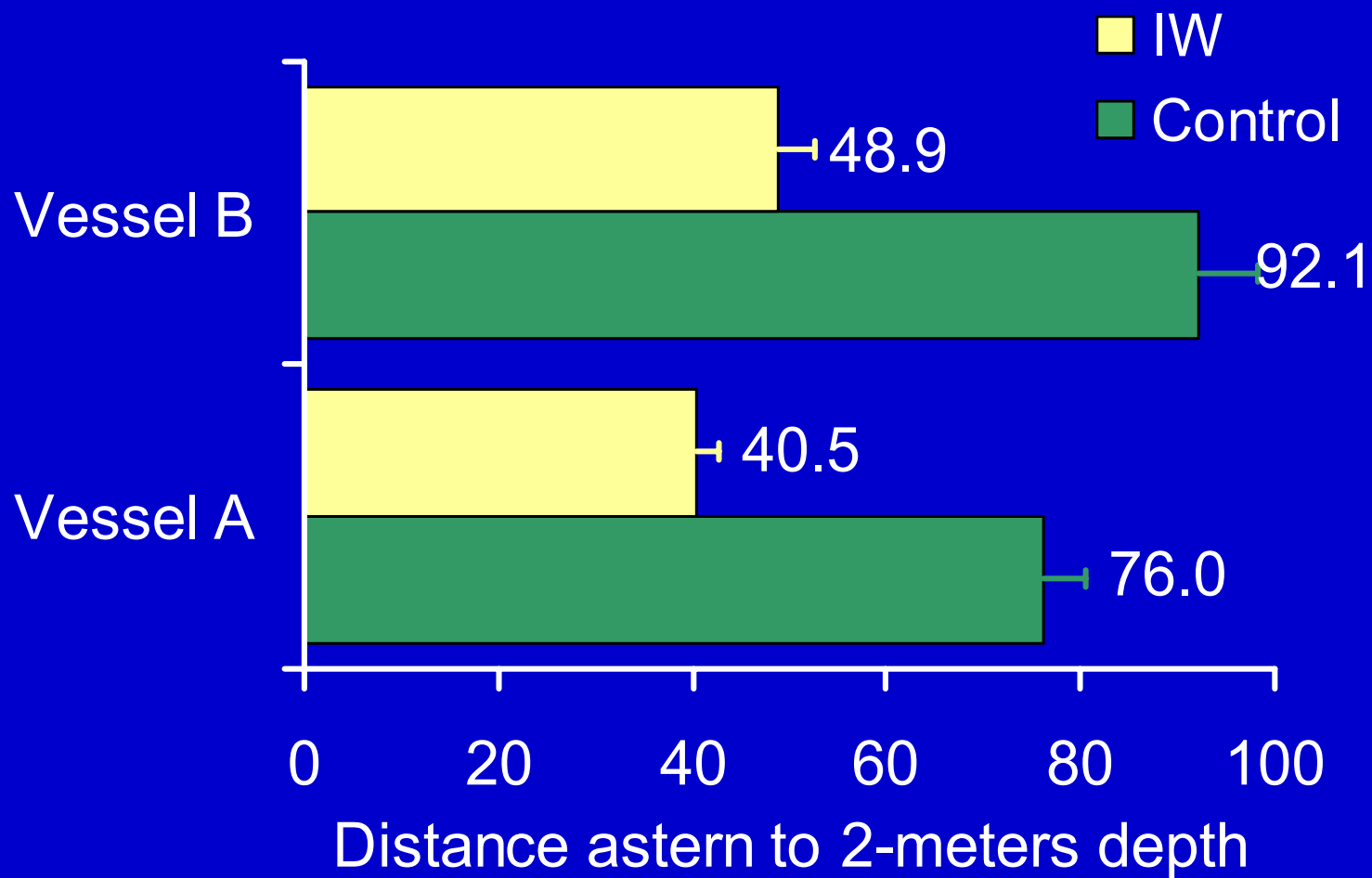


Sink Rate - Time



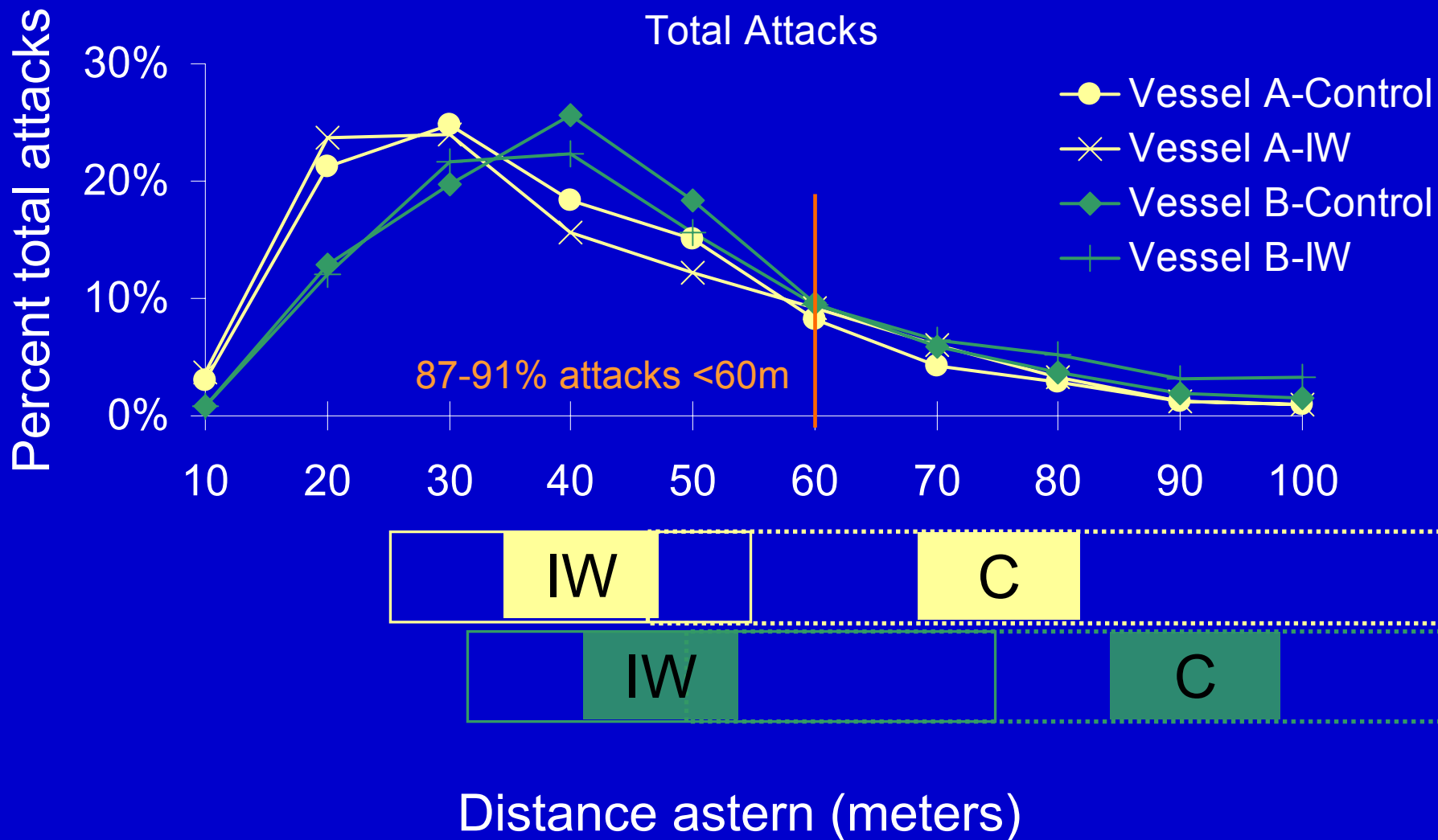


Sink Rate – Distance





Attack & Sink Rate – Distance



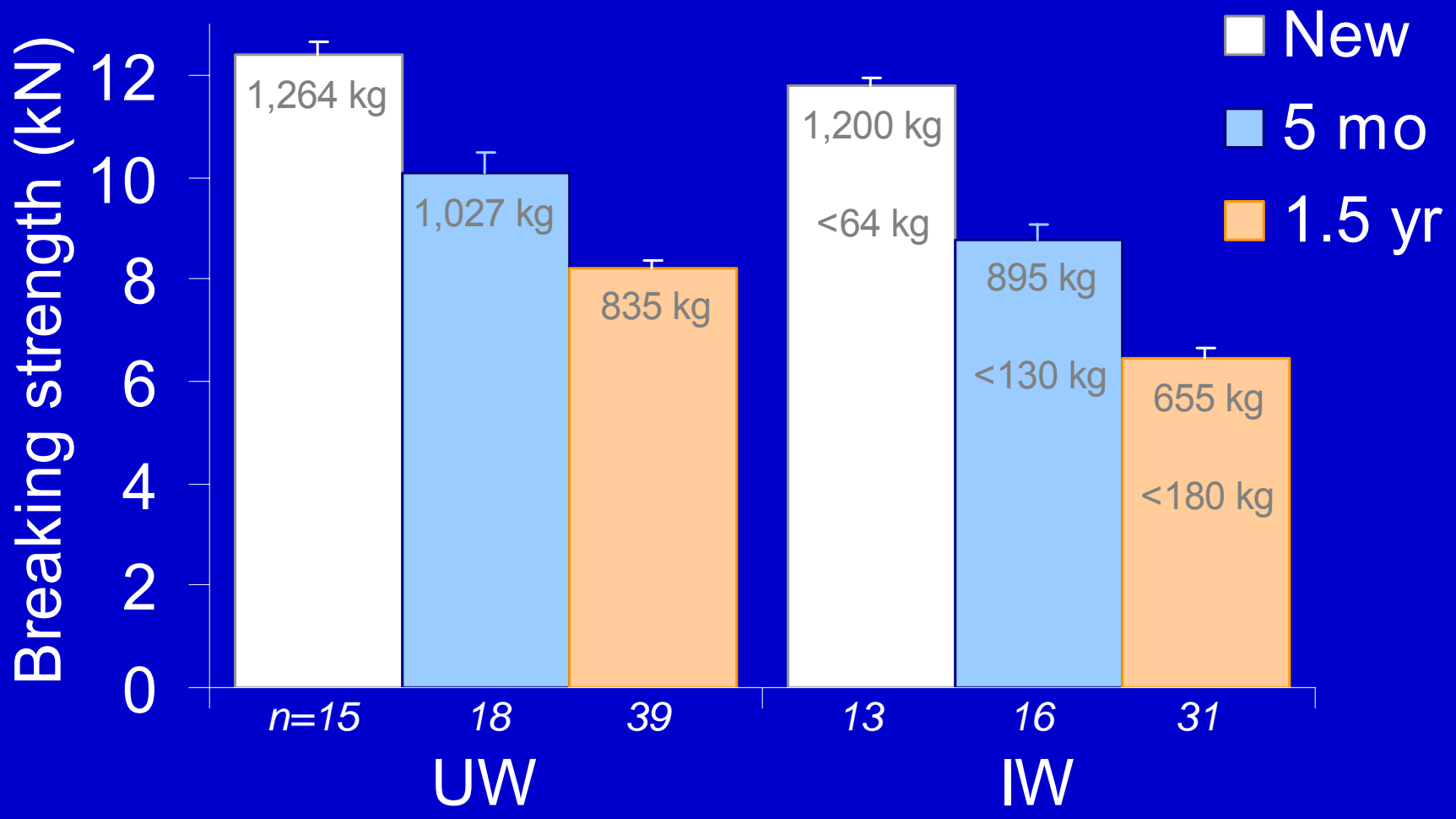


Testing breaking strength





Breaking strength UW > IW





IW Longline

BENEFITS

- Fewer snarls (↓50%)
- Better flow
- Better memory
- Easy enforcement



DRAWBACKS

- Cost
- Rail reinforcement to handle added weight
- Vessel stability



Summary

- Total & target fish catch – no effect
- Surface foragers – all ↓ catch rates similarly
- Shearwaters – all ↓ catch rates; IWPS best
- Behavior – poor proxy for mortality
- IW - positive addition to toolbox but...
 - Appropriate for all vessel types?
 - Use in combination with other tools?



Thanks to:

- **Dave Shoemaker**, Aleutian Spray Fisheries
- **Mike Fitzgerald** & crew of f/v Pathfinder
- **Brian Walker** & crew of f/v US Liberator
- **Thorn Smith**, NPLA
- **Kim Rivera**, NOAA Fisheries
- North Pacific Groundfish Observer Program, Observers & staff
- **Greg Balogh**, US FWS
- Rena International & Fiskevegn
- **Captains & Crew of the f/v North Cape & Zenith**





Questions?

