



3.2 Potential Target Reference Points that consider fisheries across the extent of the stock: Yellowfin fisheries as an example



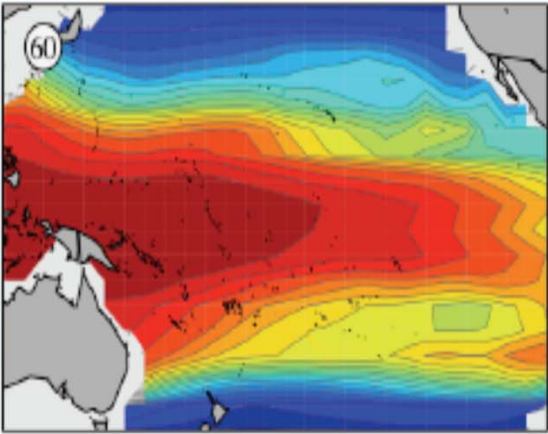


Background

- MOW1: biological management objective (tropical fisheries):
 - maintaining yellowfin and bigeye biomass above levels that provide fishery sustainability ('sufficient' catch rates) throughout their range
- Example of how to make this objective operational through TRPs
- Example where this objective is the only one applied to a fishery
- Example and analysis are provided to promote discussion rather than suggest that a particular management objective and ways of making it operational should be considered



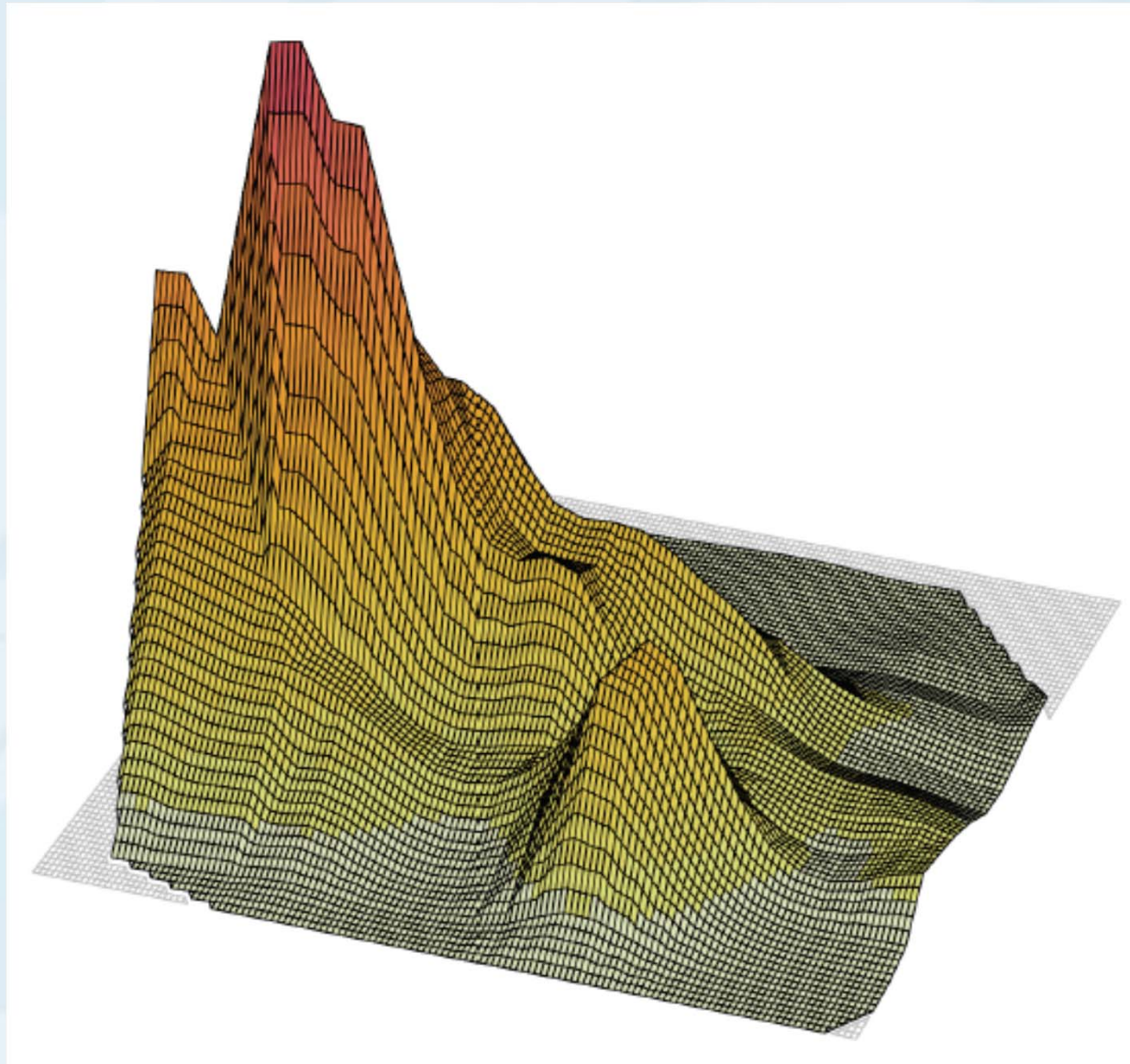
What's been going on in the YFT LL fishery?

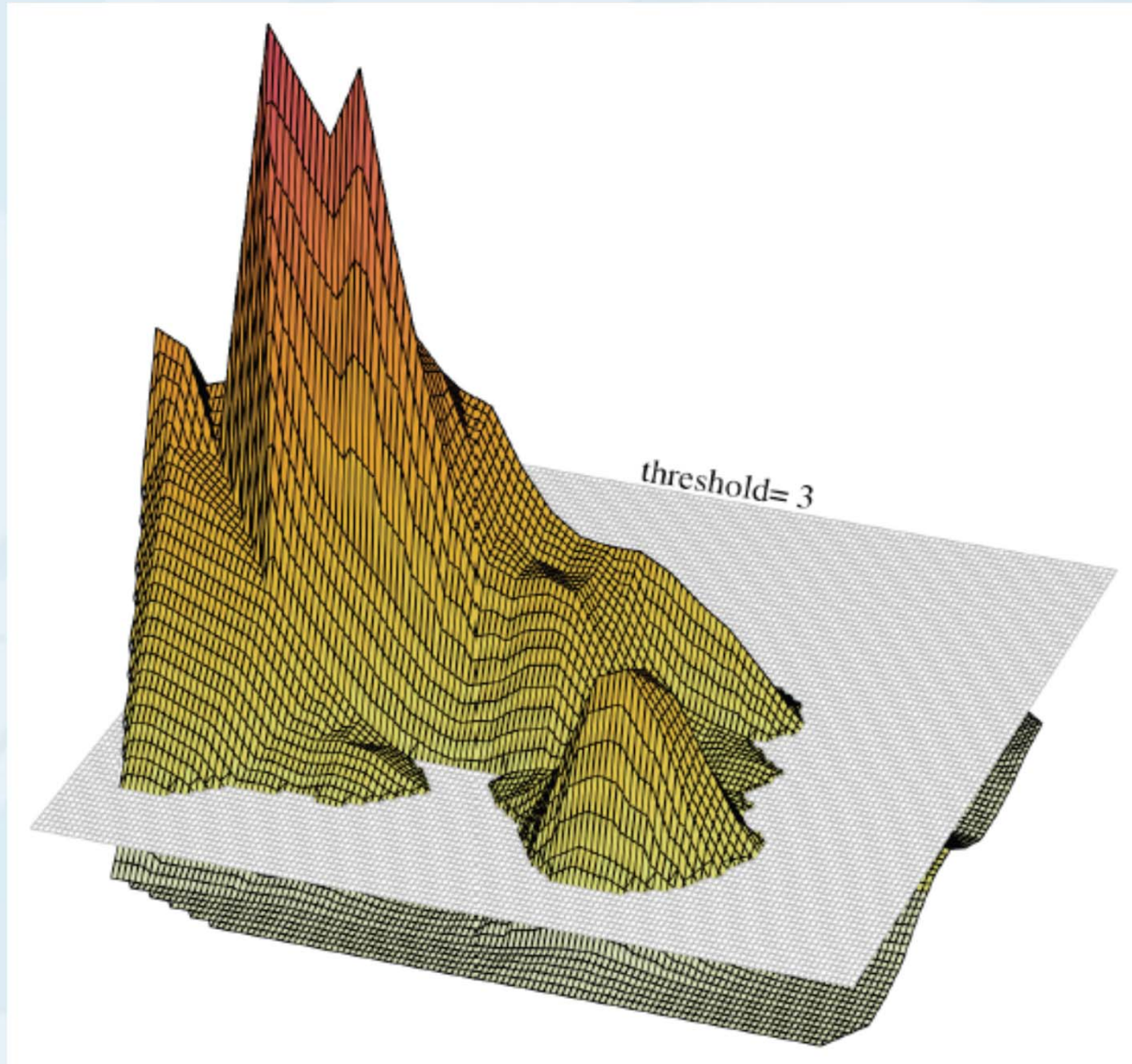




Approach

- Use modelled CPUE estimates to identify potential 'minimum' catch rate thresholds as suitable fishery management objectives;
- Identify the time period at which those minimum catch rates were last seen in the southern WCPO region; and
- Using the yellowfin stock assessment, identify the average spawning stock biomass level corresponding to that time period = a Target Reference Point *SB* level to represent the management objective of managing range contraction (i.e. building stocks to enable a return to historical catch rate levels).

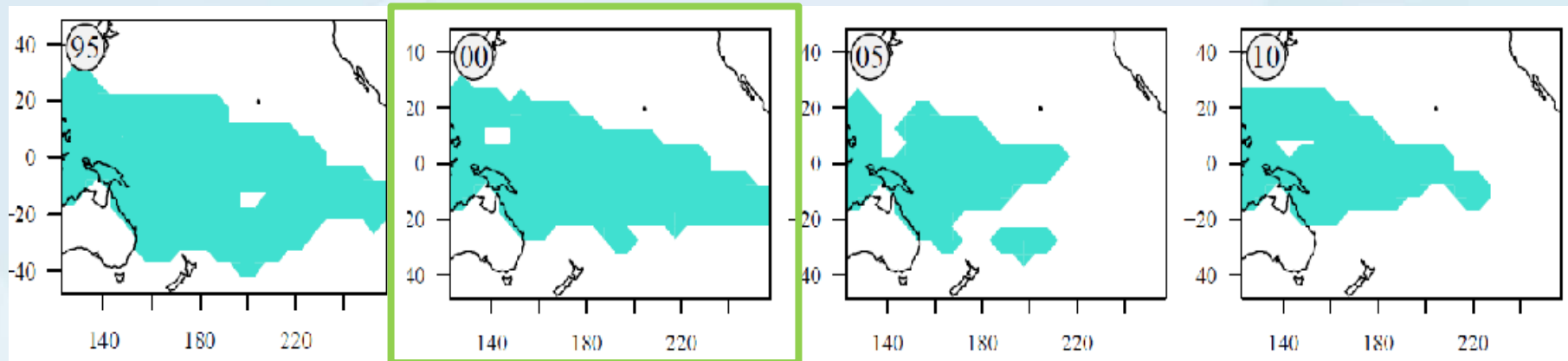






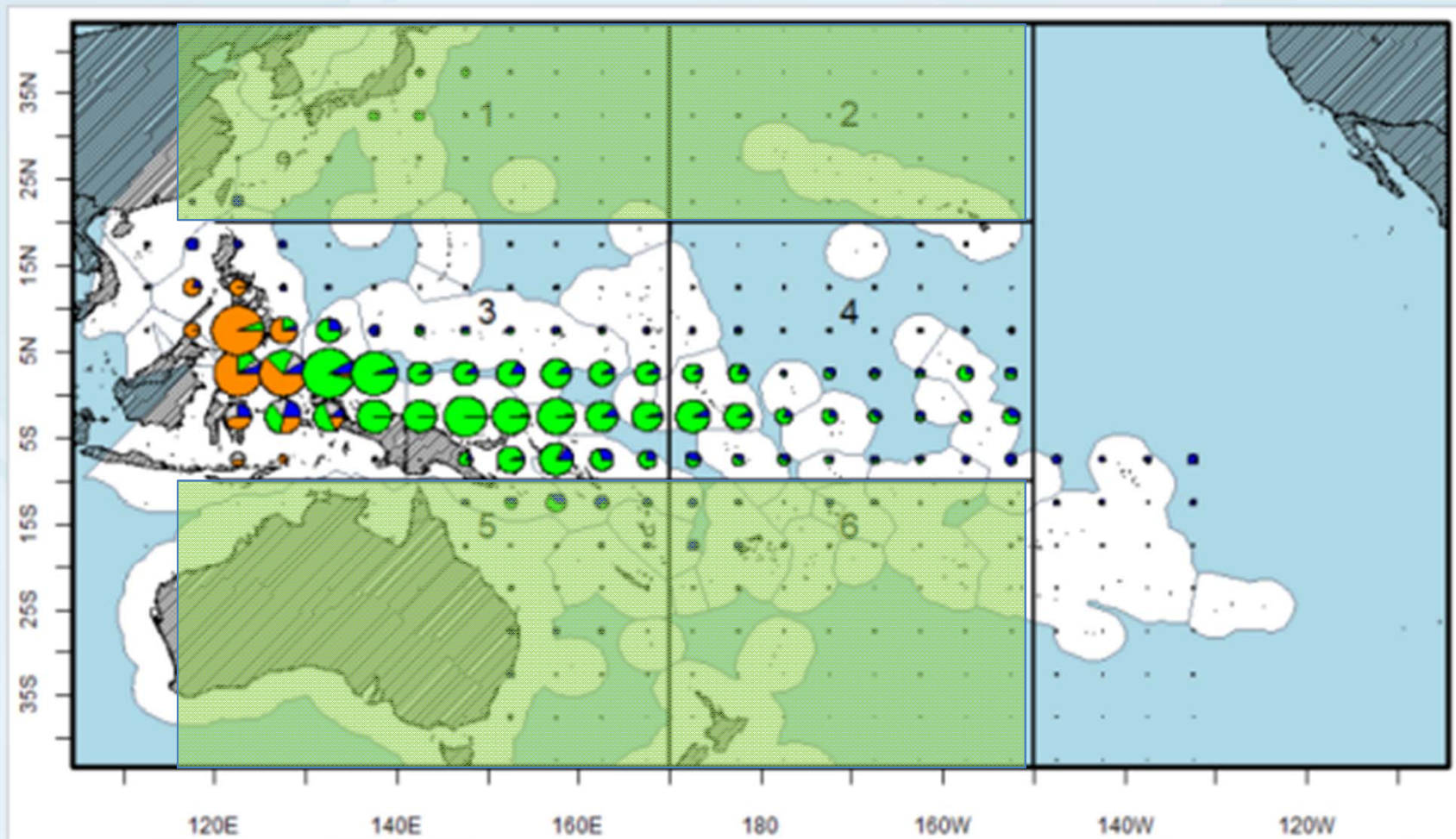
Models of YFT CPUE

2 individuals/1000hooks



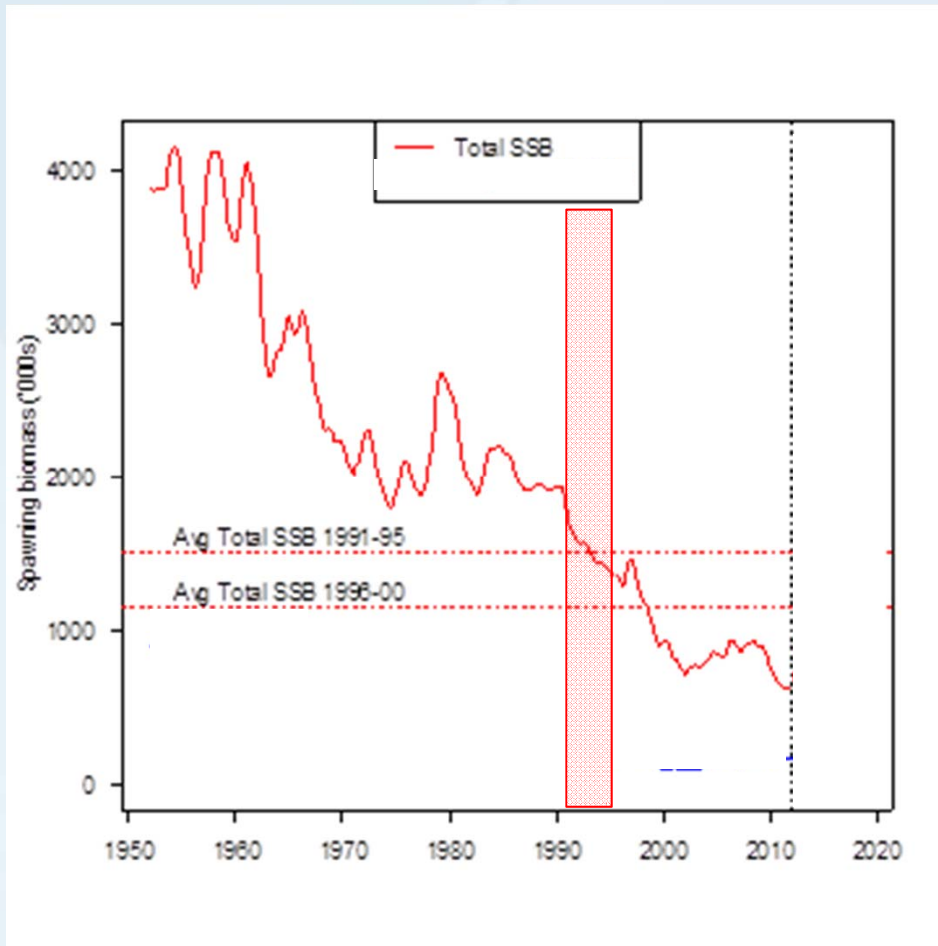


Calculating the biomass





What is the adult biomass level?



CPUE threshold	Period	Avg SSB (relative to 06-10)
3 /'000 hooks	1991-1995	1.75 ($2.2SB_{msy}$)
2 /'000 hooks	1996-2000	1.33 ($1.7SB_{msy}$)

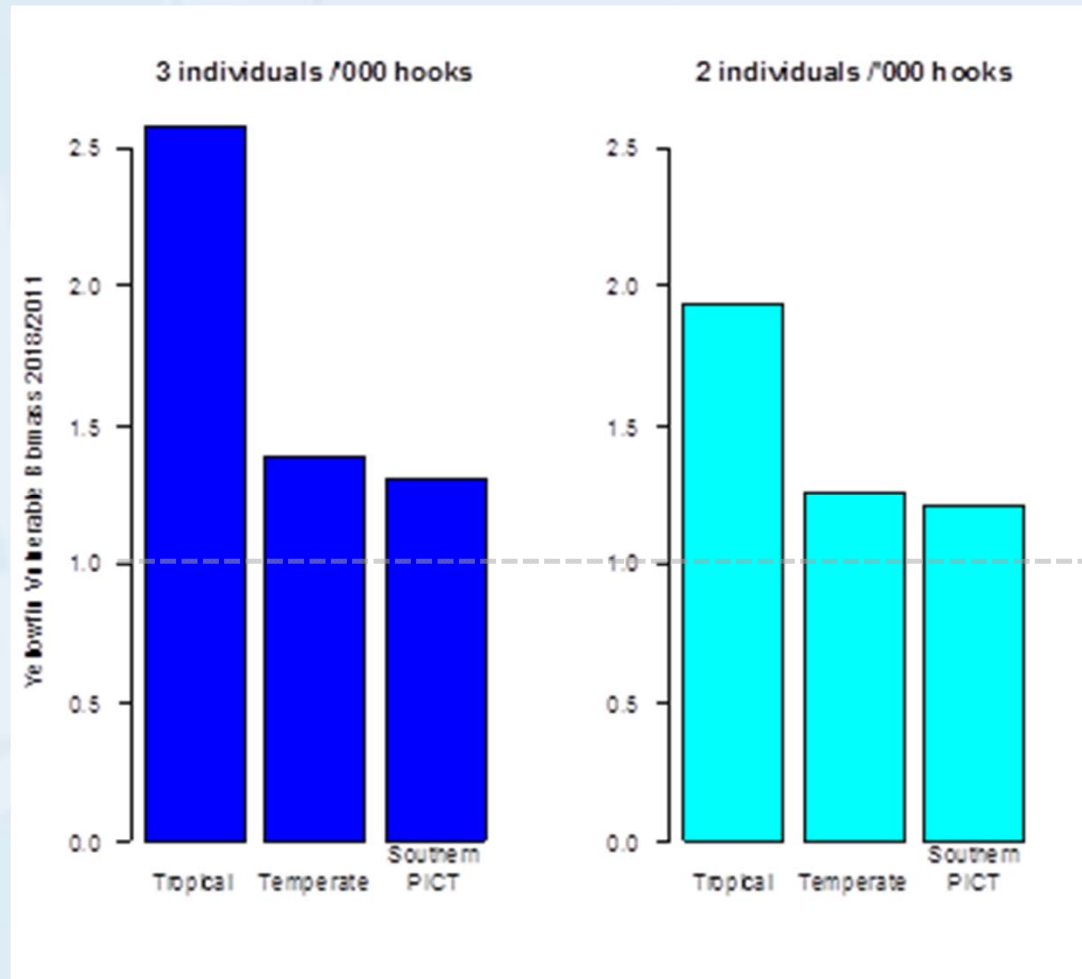


CPUE target	Reduction in total effort/catch required
3 indiv/'000 hooks	58%
2 indiv/'000 hooks	24%

- Substantial catch/effort reductions required to achieve target SB (20-50% for 2-3 fish per 100 hooks) etc by 2018



'Catch rates' for fisheries



Vuln. Biomass 2018 (relative to 2011)



Suggested discussion points

- How important are tropical tuna catches to higher latitudes coastal fisheries?
- Is a management objective based on fisheries across the range of stocks appropriate?
- What performance measures are appropriate for such an objective?
- Given interactions and potential trade-offs between both purse seine/longline fisheries and tropical/temperate fisheries for yellowfin, what is a desirable approach to achieving any target?
- What considerations are appropriate to determine an 'extent of the stock' Target Reference Point and rebuild timescale?
- What mechanism could be used to offset management measure impacts which result in a fishery bearing a disproportionate burden?