

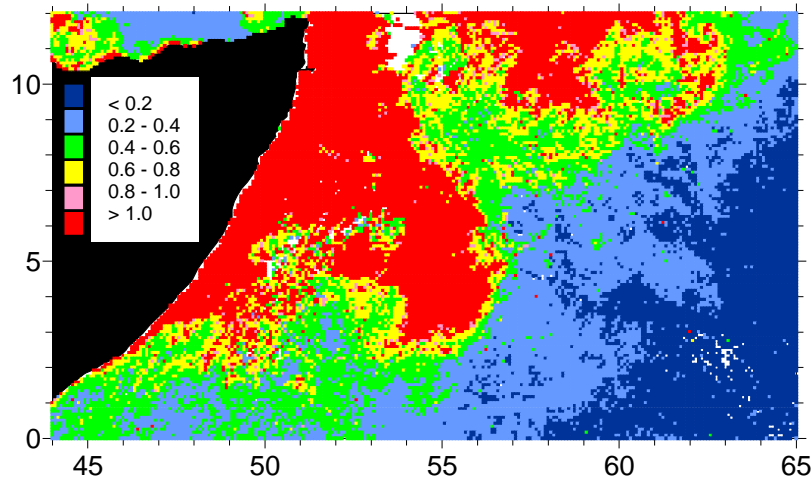
What effects of the new Somalian MPA on stocks and fisheries?



- Indian Ocean MPAs:
- Proposed by Greenpeace
 - Enforced by pirates

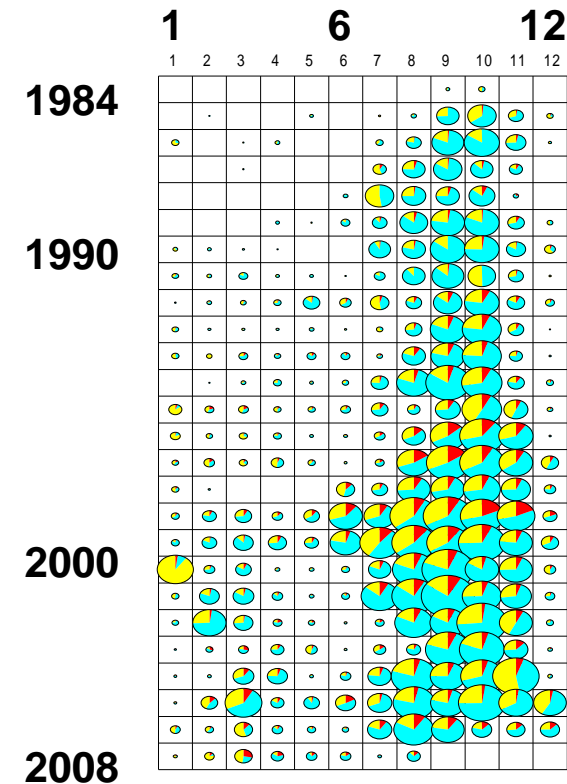
***present Somalian MPA:
much smaller than Greenpeace ones, but already quite drastic..***

Somalia area: its upwelling, tunas & pirates



*Exemple of
primary productivity
In the Somalia area,
(September 2003)*

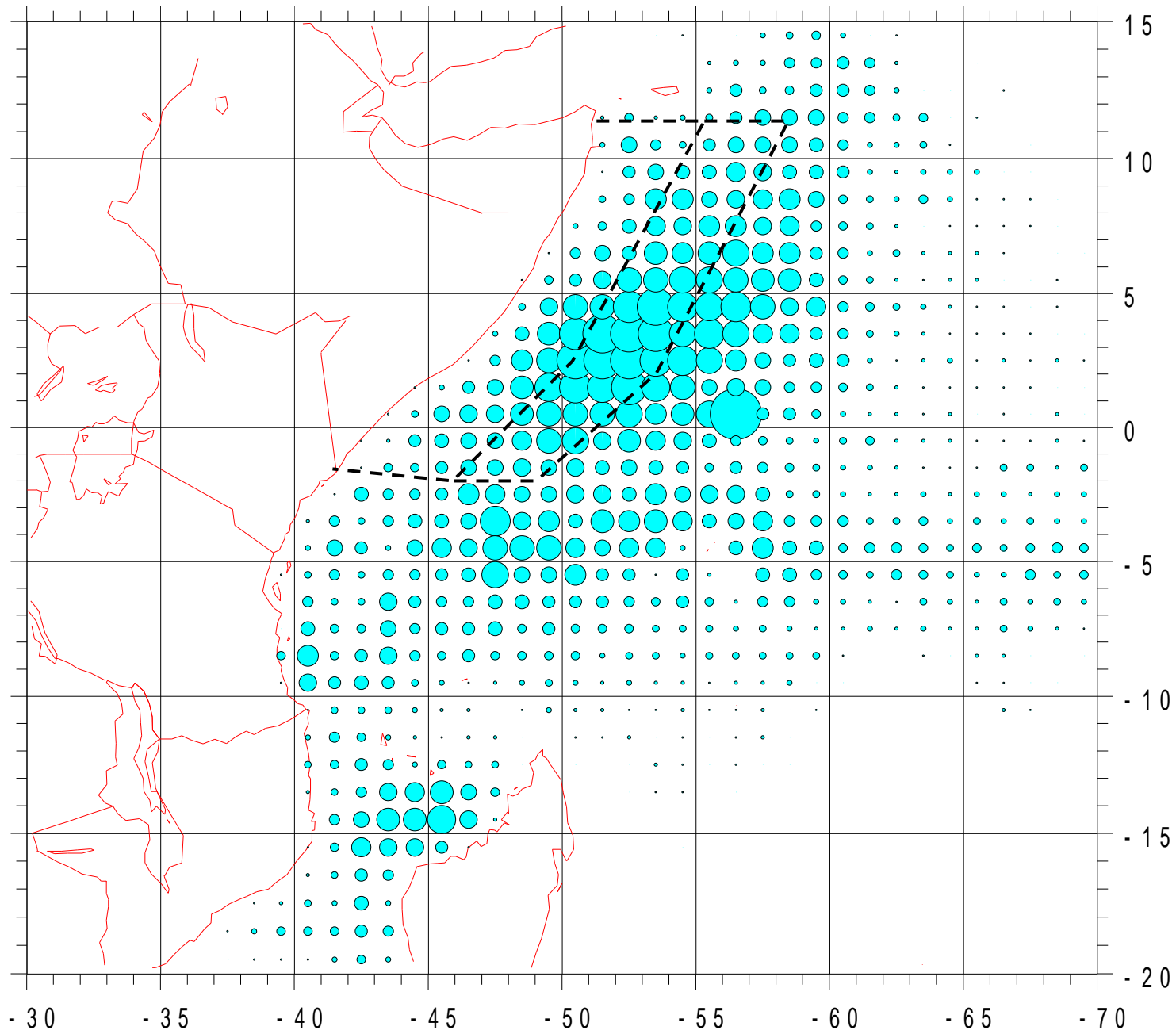
- At a world wide scale, Somalian upwelling is the most powerful one in terms of its biol. productivity
- Seasonality and locations of tuna fisheries are directly linked with this upwelling: small tunas off Somalia, YFT/SKJ/BET, are seasonally feeding upon the Somalian upwelled productivity
- Typically a seasonal feeding area: seasonal tuna migration/concentration in this rich area
- Tuna catches per 5° sq. off Somalia, 12.000 to 20.000 t. caught yearly, are among the highest in the IO



Monthly catches
/PS Somalia area



- The increasing piracy in Somalian areas has been chasing most tuna fleets (1) outside the Somalian EEZ, and recently mid 2008 (2) outside a much wider offshore area, at about 400 miles from Somalian coast line
- This was clearly a major human drama for tuna fishermen in the area
- But it appears that this major reduction of PS fishing zones is similar to the full and efficient implementation of a wide MPA within an highly productive area, an MPA already recommended by Greenpeace, but not yet by the IOTC SC
- We can already project the consequences of this MPA..., that will probably be enforced during several years in the future... but this will need an ad hoc analysis and modelling of catches, efforts and size data and of tagging recovery results, a result that should be obtain done in // for the 3 species...



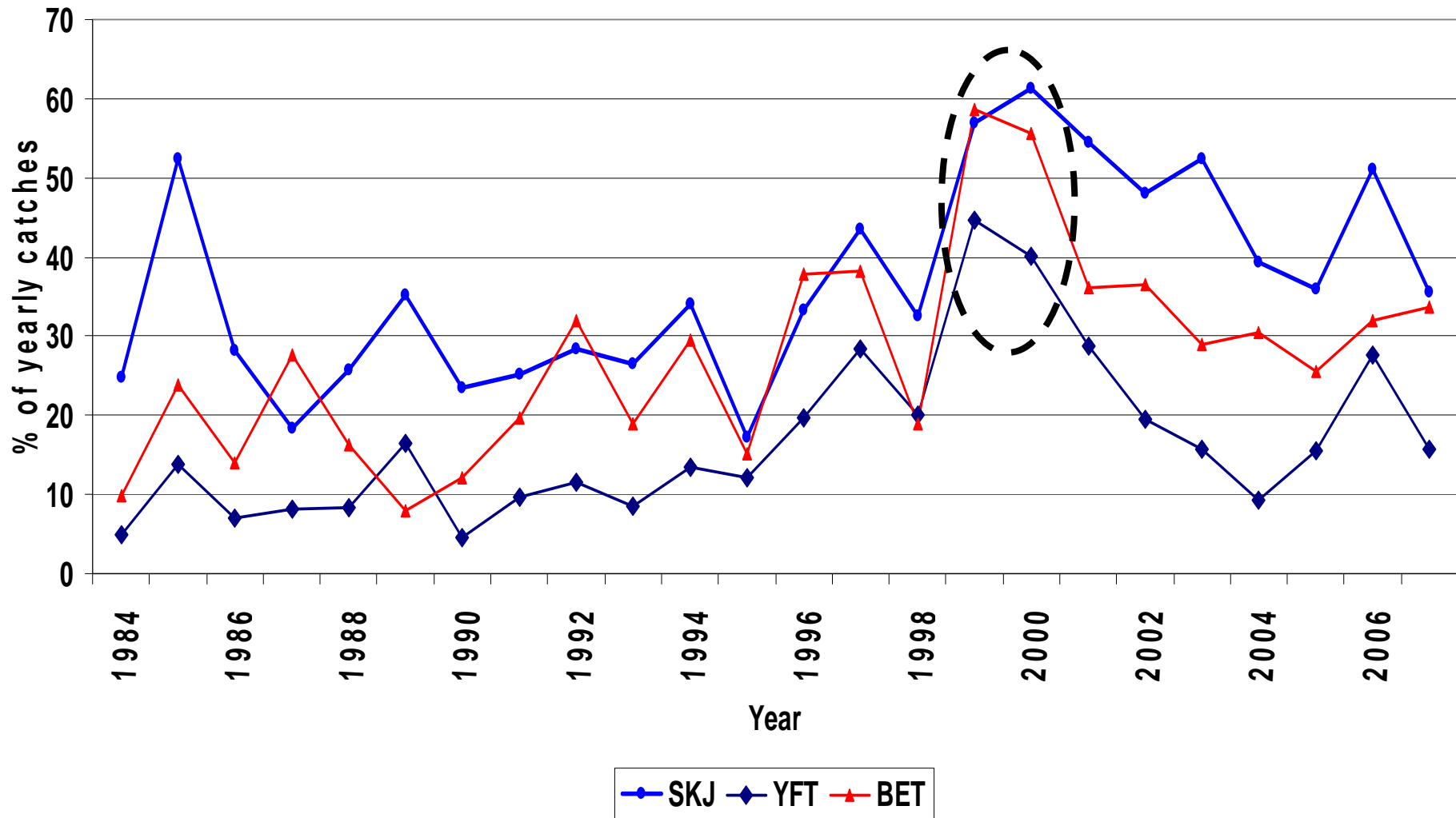
SKJ catches / PS 2000-2005

SKJ

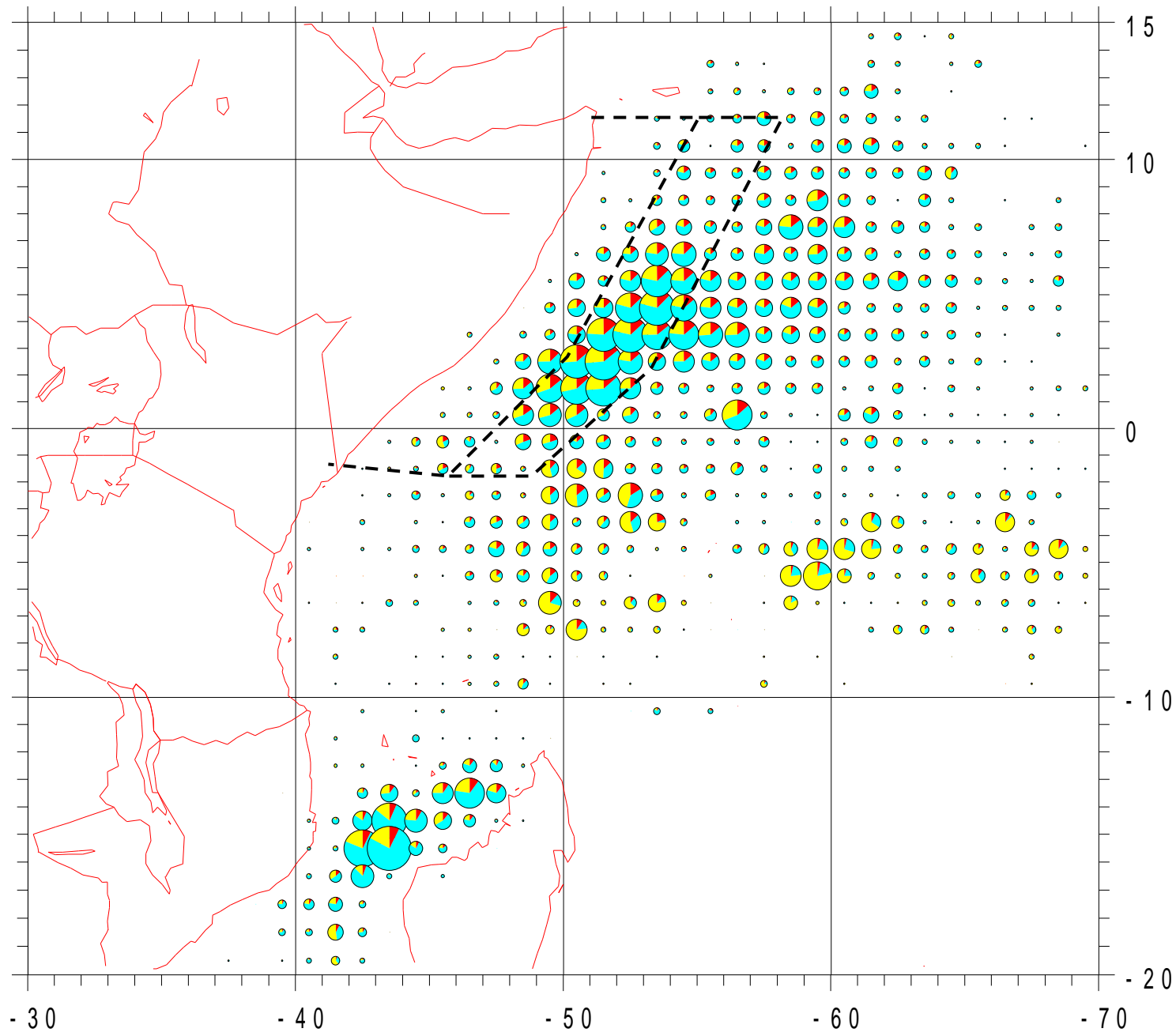


4000

% of PS catches in the 400 miles Pirates Somalia area



**% of YFT, SKJ and BET in PS catches in the 400 miles Somalia area:
1999-2007: 6% of SKJ inside EEZ, but 47% in the 400 miles area**



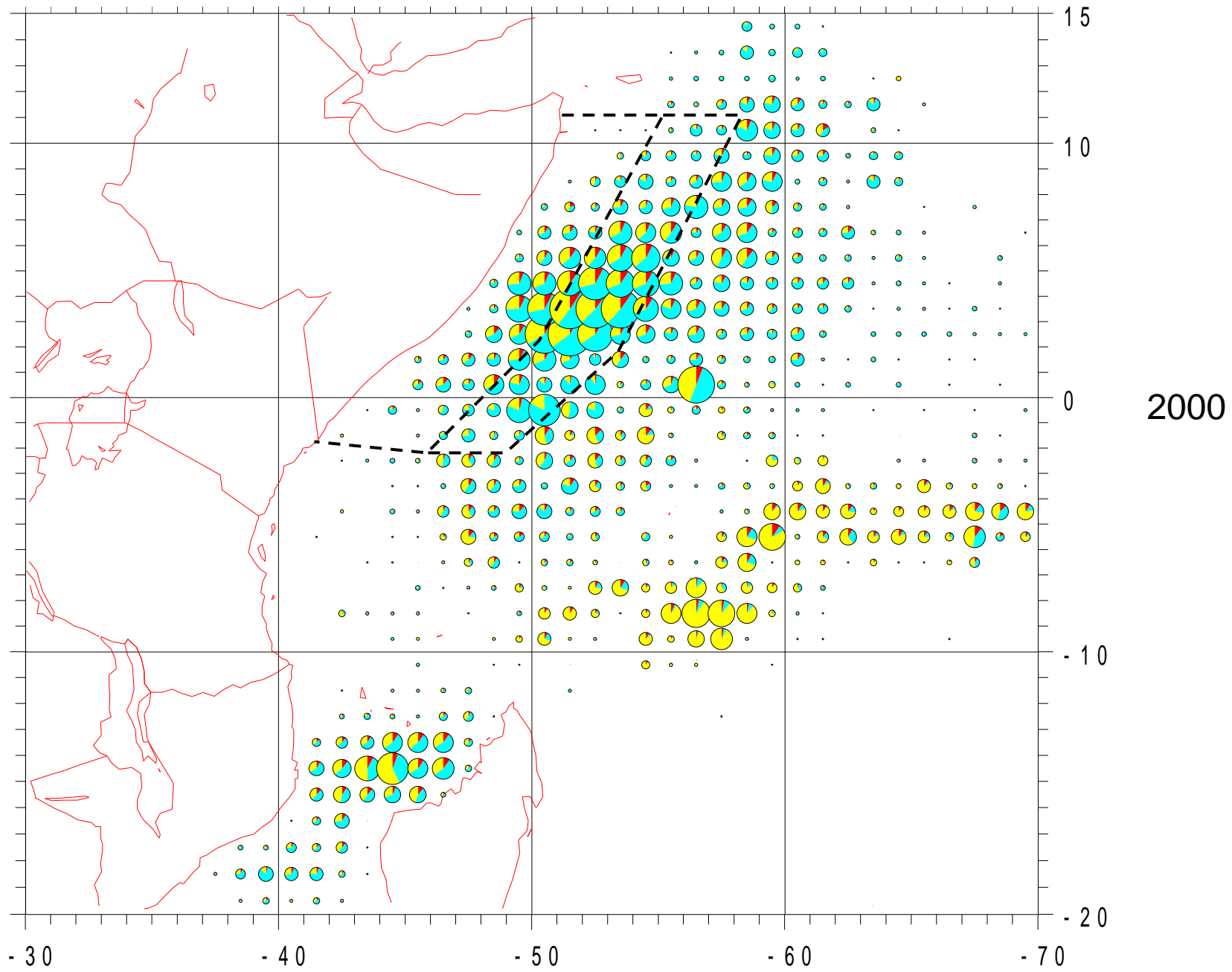
1999

PS Catches 1999

YFT



BET

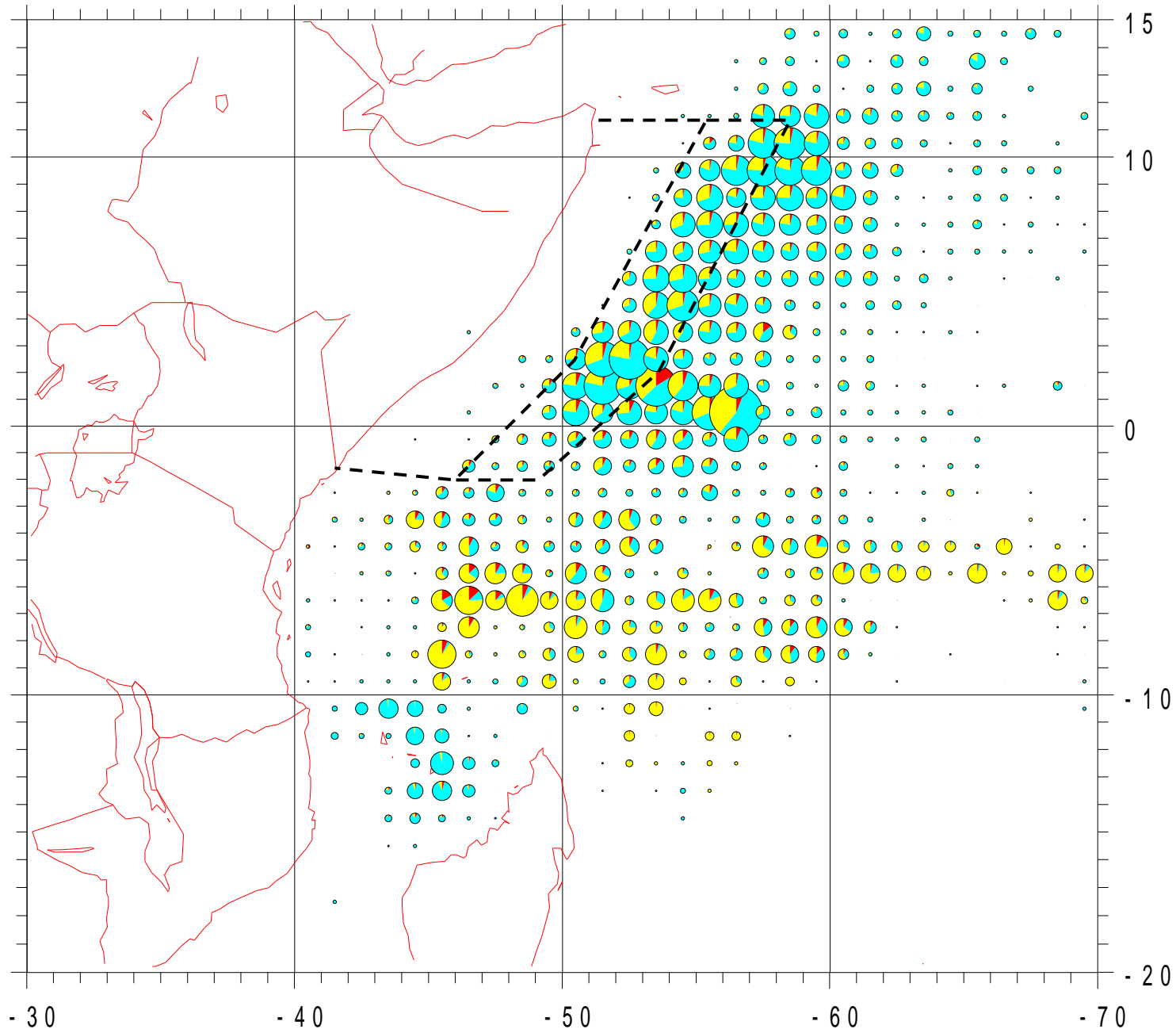


PS Catches 2000

YFT



BET

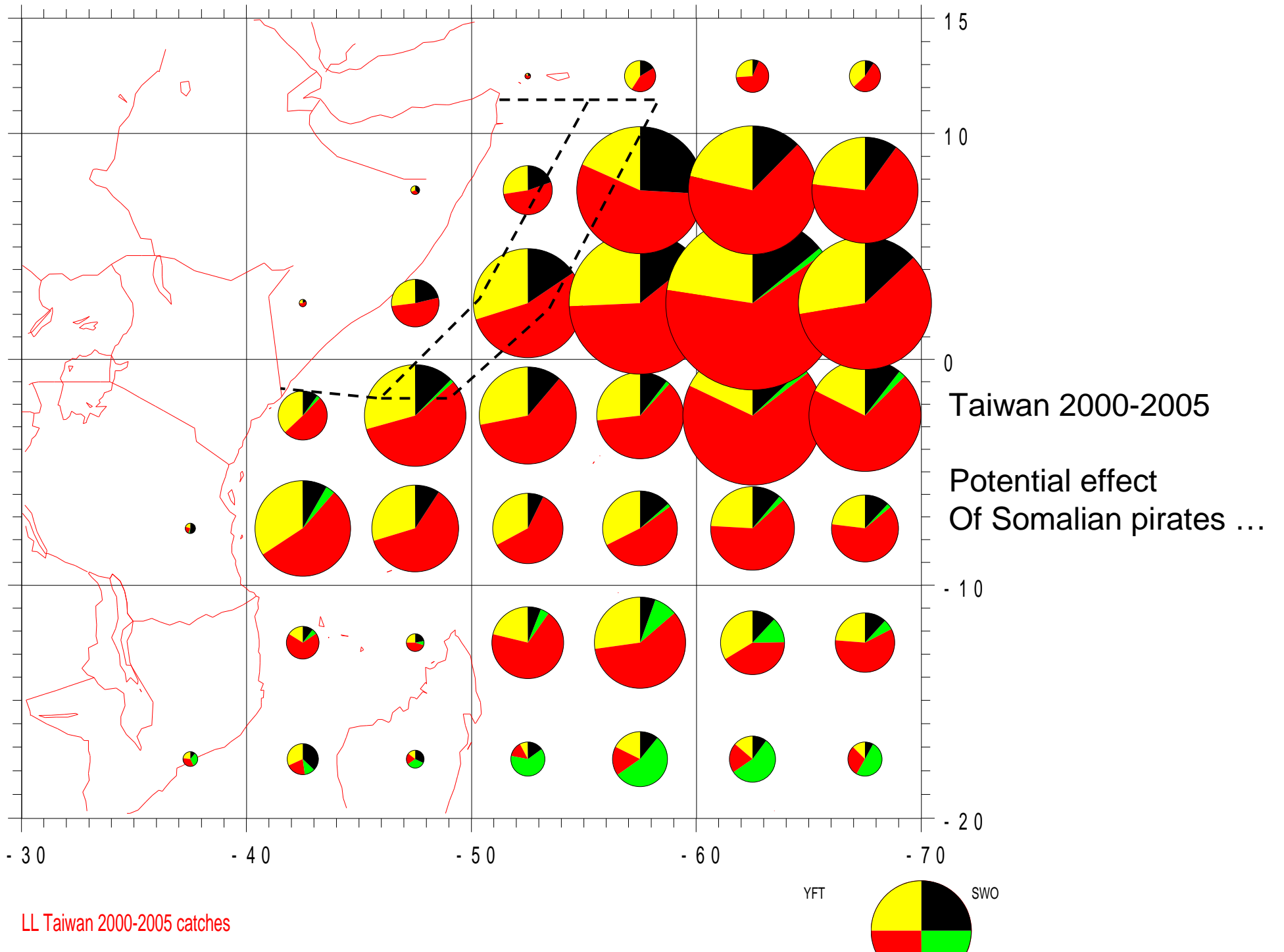


PS Catches 2006

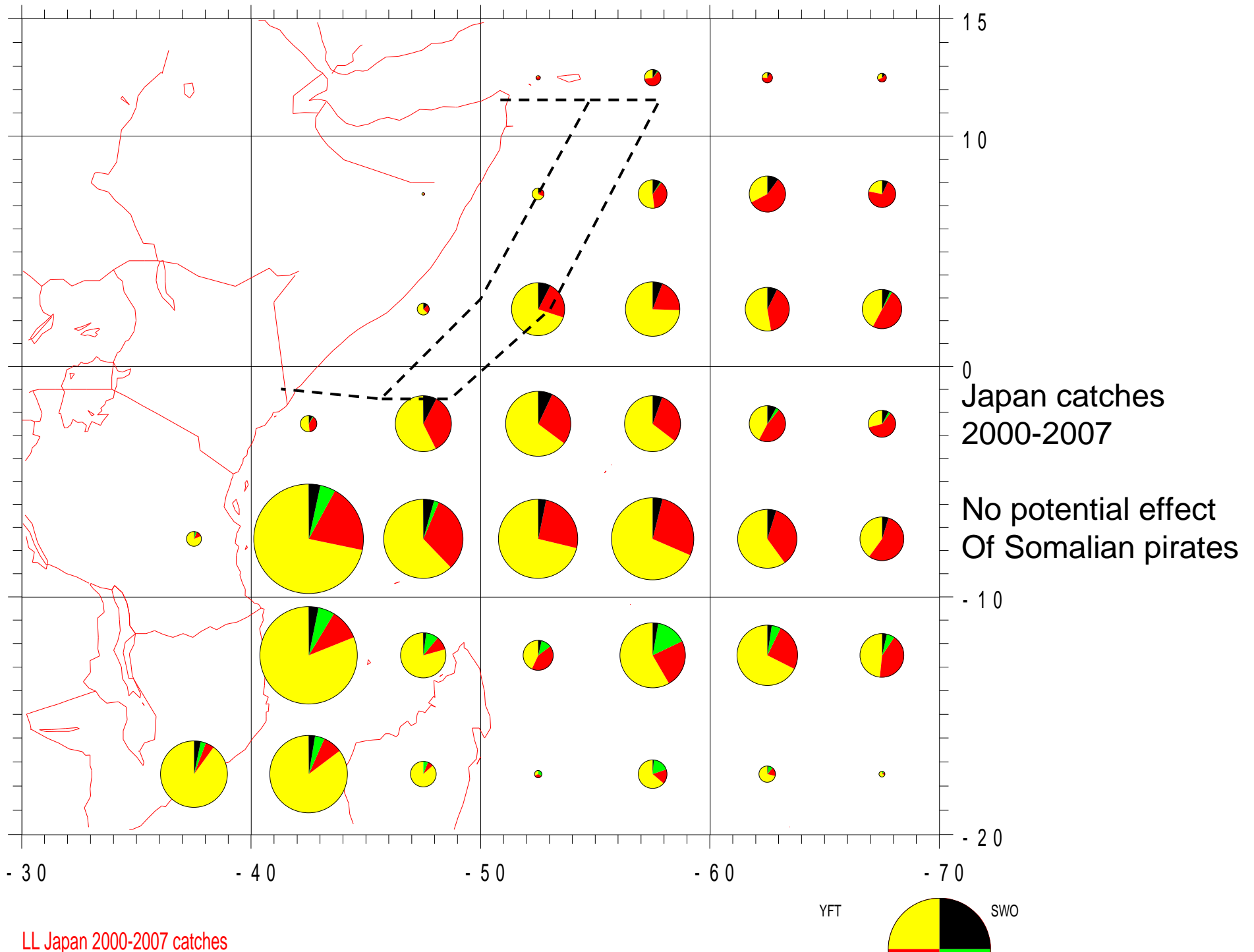
YFT



BET



LL Taiwan 2000-2005 catches

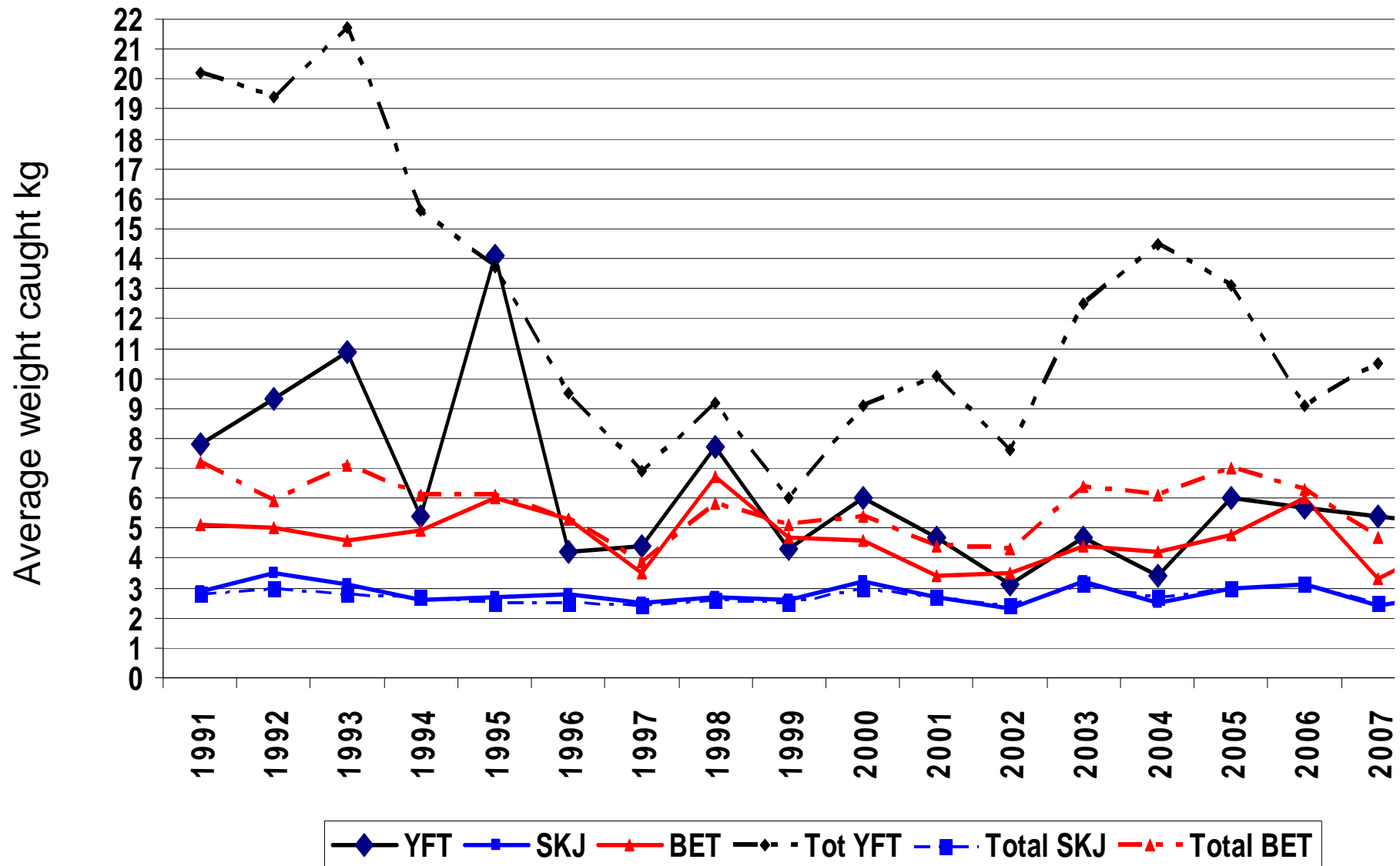


LL Japan 2000-2007 catches

Average weight of YFT, SKJ and BET taken by PS:

(1) by the whole PS fisheries in the West IO

(2) by the PS in the Somalia area 10°N-Equator, W of 55 °W



Discussion & conclusion

Effects of the Somalian 400 miles MPA

- Major potential impact on the purse seine fisheries for Skipjack (48% of recent PS catches), but also for YFT (24%) and for BET (37%)
- Somalian MPA would reduce the size of the fished area, then possibly the MSY, as tuna MSYs tend to be related to the sizes of the fished areas (Fox, Laloe), especially when these stocks are « viscous » ones
- However, the results of the IOTC tagging programme have demonstrated that the 3 species are highly mobile in the entire Equatorial Western Indian Ocean: surely we do not have viscous fractions of stock in the Somalia MPA
- We have now in the tagging, fishery and environmental data/results all the basic information that are fundamentally needed to estimate the effect of the new Somalian MPA on the 3 species and tuna stocks and fisheries
- These data should be fully analyzed using ad hoc movement model (cf Sibert, Adam) in order to be later incorporated in the assessment.
- This would be the only way (1) to incorporate the effects of Somalian MPA in the assessment, and (2) to evaluate its future effects on the tuna catches and MSY of stocks for the 3 species

Somalia MPA



- **Waiting the results of these highly recommended analysis,**
- **One can conclude that if the present MPA is fully enforced in the future, it will probably be a drastic management measure, probably leading to a (very?) significant reduction in total catches and fishing mortality of SKJ, and also of small YFT and BET**
- **This well enforced management measure, conducted independently of the IOTC, should be sufficient in the short term to reduce the fishery pressure on these stocks, and also improving to some degree the Yield per recruit of YFT and BET**