

WP05 (LOT stock assessments) and WP06 (KAW stock assessments)

3rd Meeting of the Scientific Working Group on Neritic Tunas Stock Assessment in the SE Asian Waters, 27-29 June 2016, Cholburi, Thailand.



Review



STOCK ASSESSMENTS ON KAWAKAWA (*EUTHYNNUS AFFINIS*) AND
LONGTAIL TUNA (*THUNNUS TONGGOL*) RESOURCES IN THE SE ASIA (SEAFDEC) WATERS

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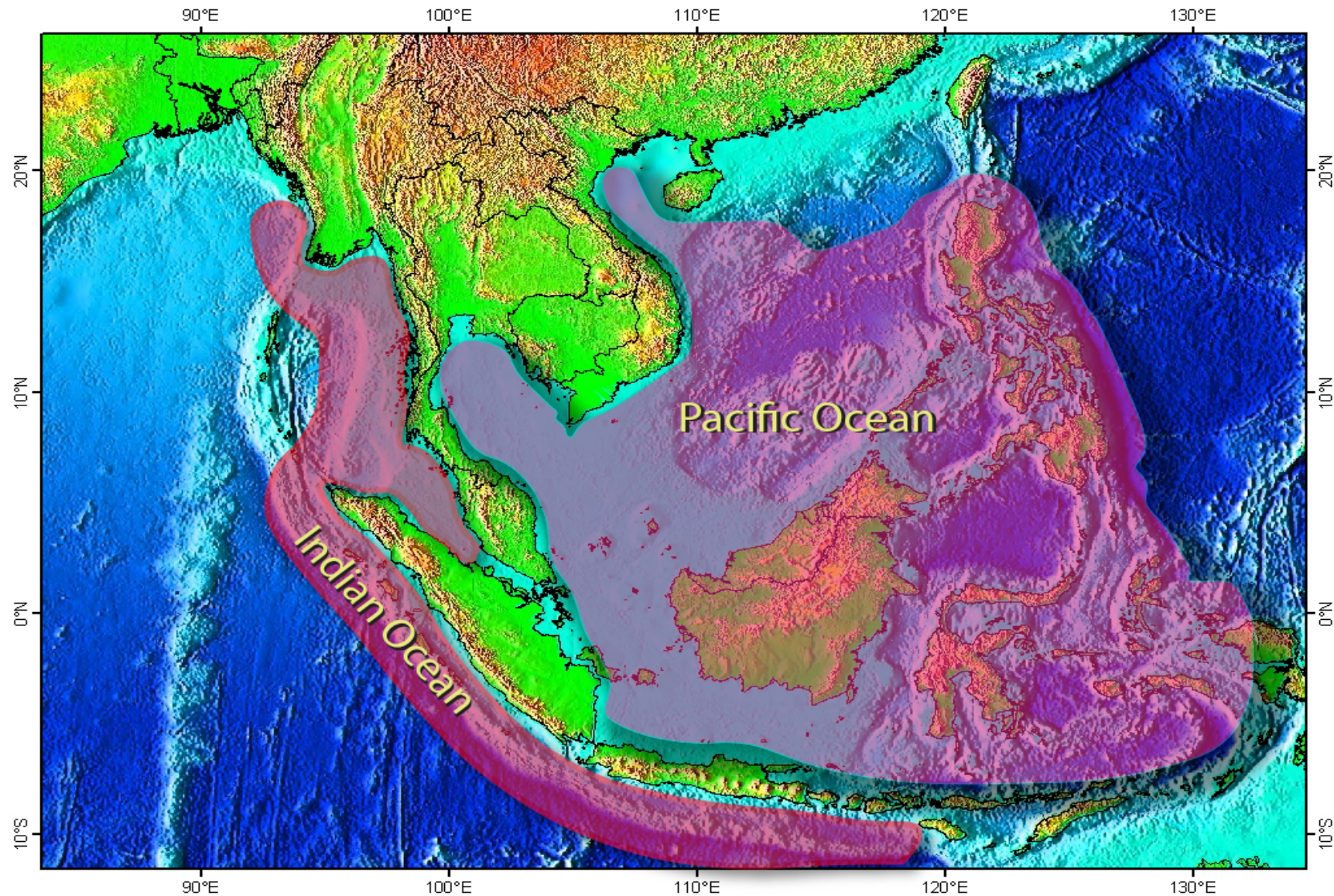
SEAFDEC / MFRDMD



**The Special Training/Workshop on
STOCK ASSESSMENTS OF LONGTAIL TUNA
AND KAWAKAWA IN THE SOUTHEAST ASIAN REGION**

17-25 April 2016, SEAFDEC/MFRDMD, Kuala Terengganu, Malaysia

2 stock hypothesis (Pacific and Indian Ocean)



4 stock assessments

- LOT (Indian Ocean side)
- LOT (Pacific Ocean side)
- KAW (Indian Ocean side)
- KAW (Pacific Ocean side)

Data required by stock assessment models

| | Structure | Model (example) | Data | | | | |
|-----|---------------------|--------------------|-------|------|------|---------|-----------|
| | | | Catch | CPUE | size | biology | space/tag |
| (1) | Catch (datapoor) | SRA | ■ | | | | |
| (2) | Production model | ASPIC | ■ | ■ | | | |
| (3) | Age/size | VPA | ■ | ■ | ■ | | |
| (4) | Integrated | SCAA/SCAS | ■ | ■ | ■ | ■ | |
| | | SS3 | ■ | ■ | ■ | ■ | ■ |

As the 1st step, we attempted the simple model (2) ASPIC

Input data

Historical nominal Catch (1950-2014) (Max period)

Published data (**IOTC, FAO and SEAFDEC**)

+ Report from member countries

Thai PS CPUE (1990-2013)

Thailand (Gulf of Thailand and Andaman Sea)

3 menu driven software + ASPIC original software (Prager, 2004)



CPUE

standardization b...



KobePlot

Ver3(2015) - ショー
トカット

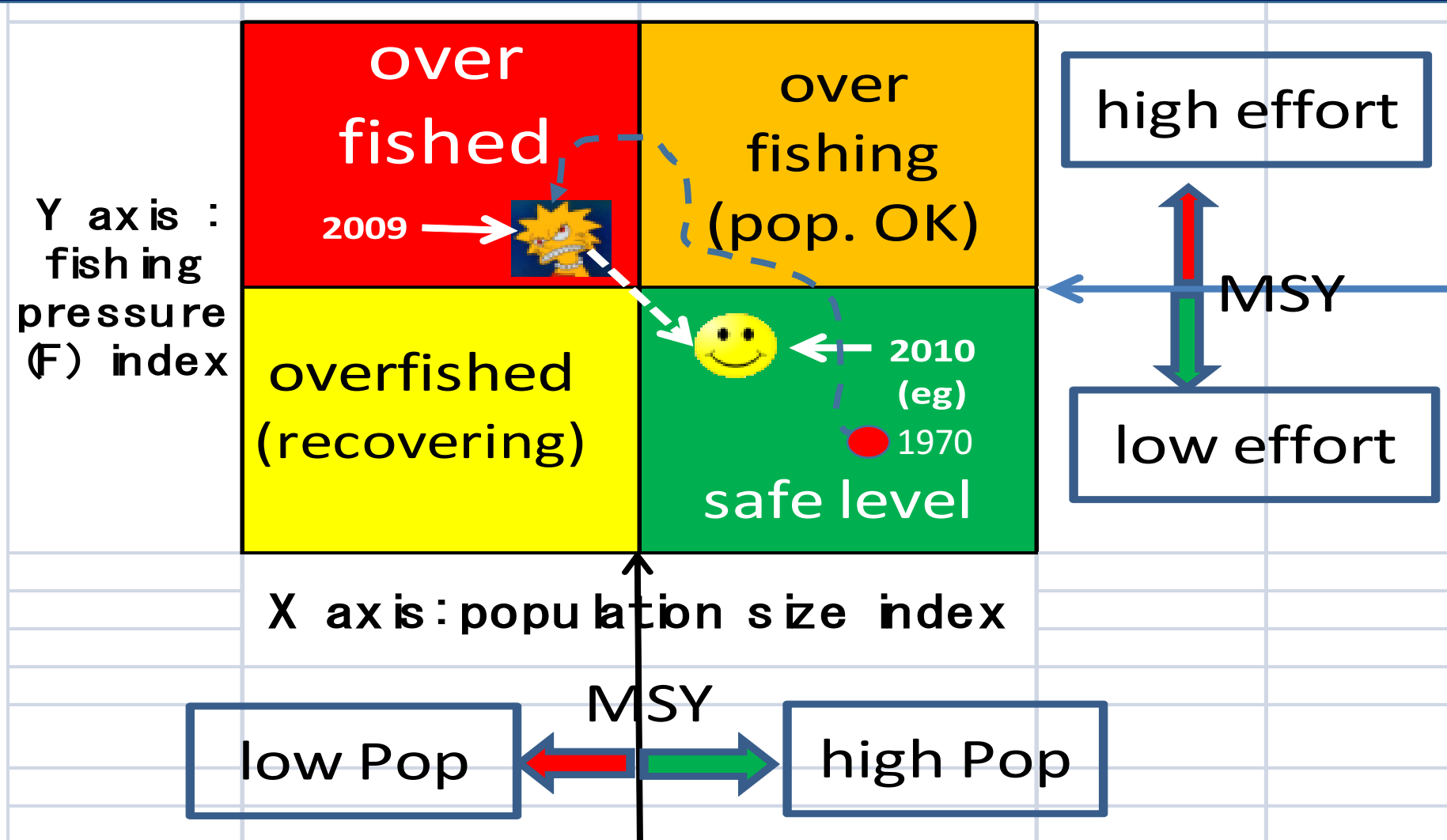


ASPIC Batch Job

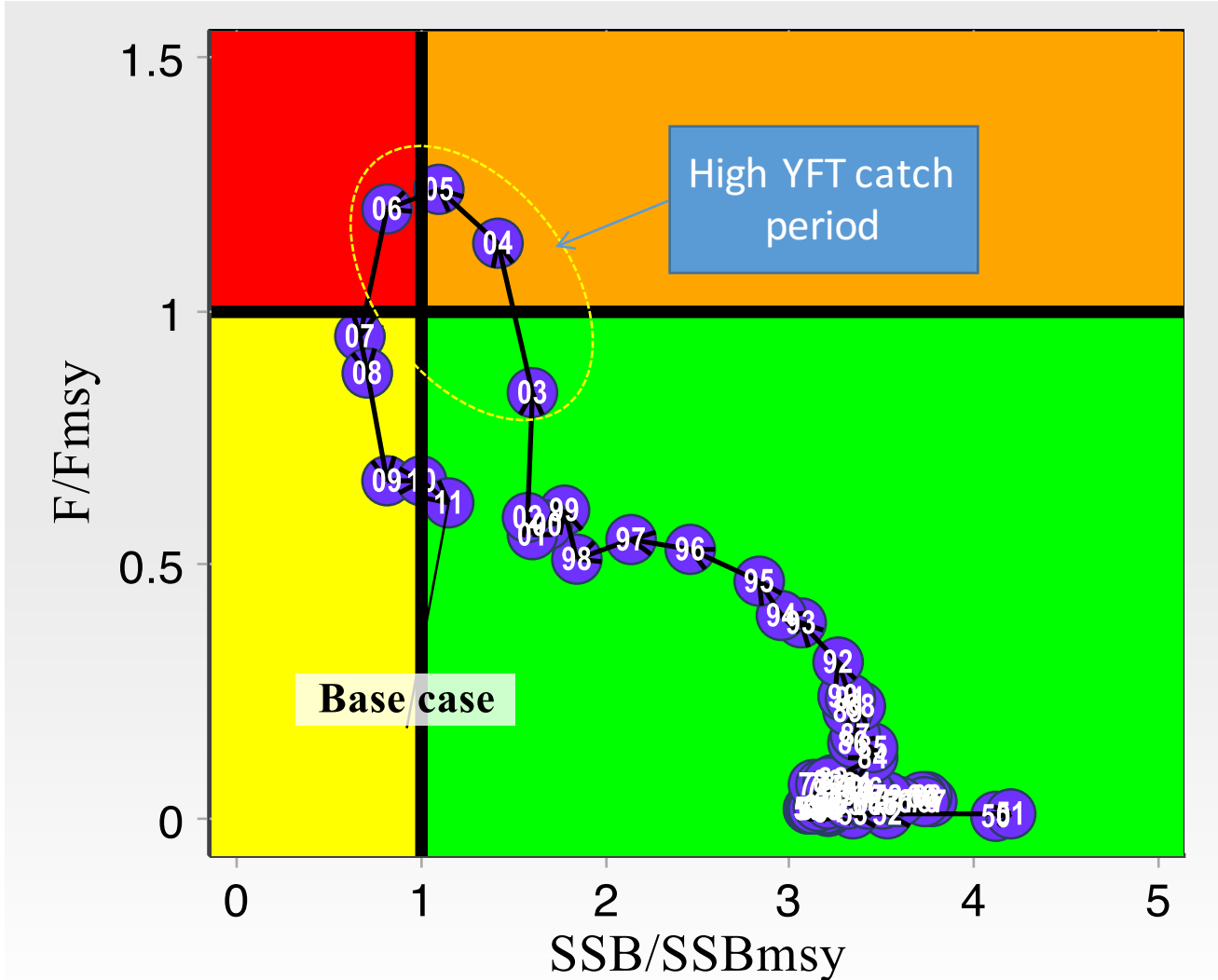
What is the Kobe plot
for those who hear the 1st time

Results of stock assessments

History of the stock status (4 phases)



Good example Indian Ocean YFT
(Nishida et al, 2011)



MSY
=308,000 t

Catch(2011)
=303,000 t

Fratio=0.62

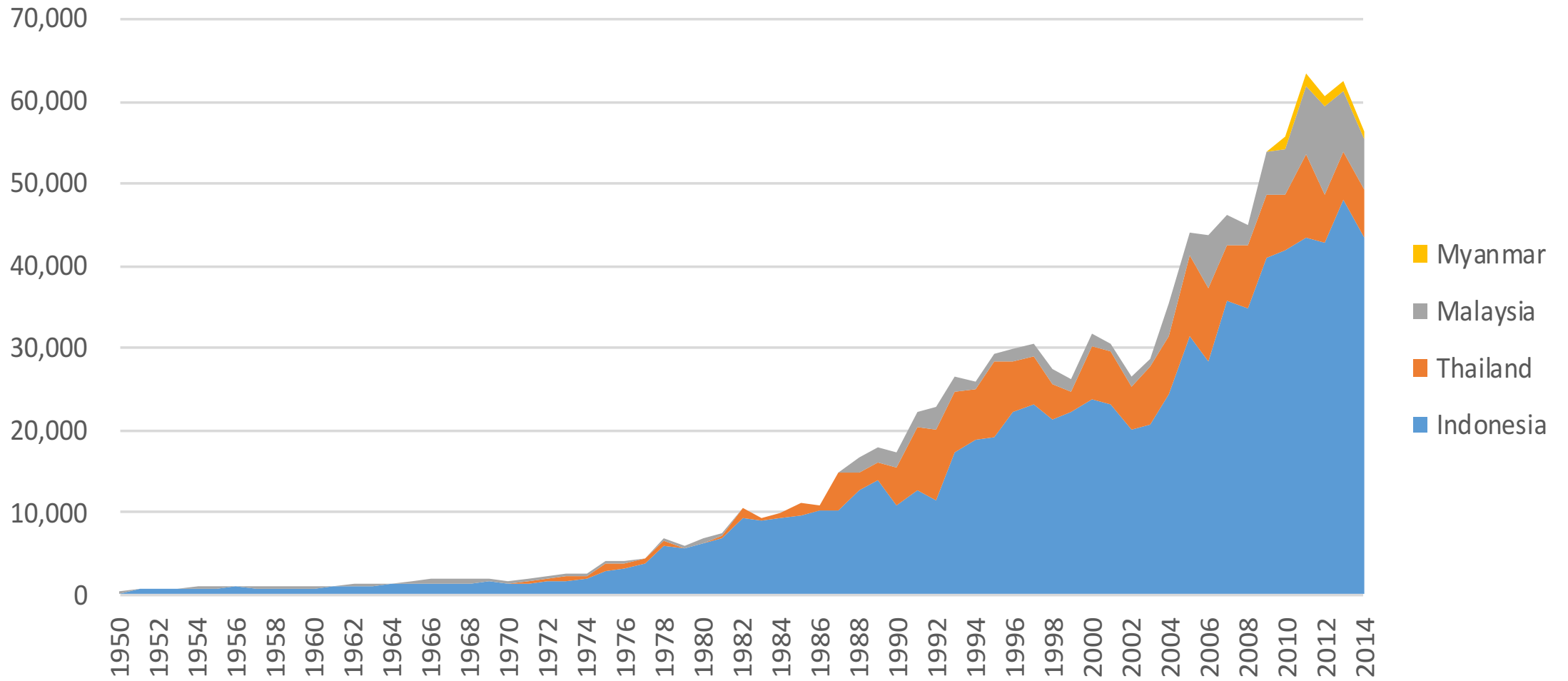
SSBratio=1.15

Entering Green zone

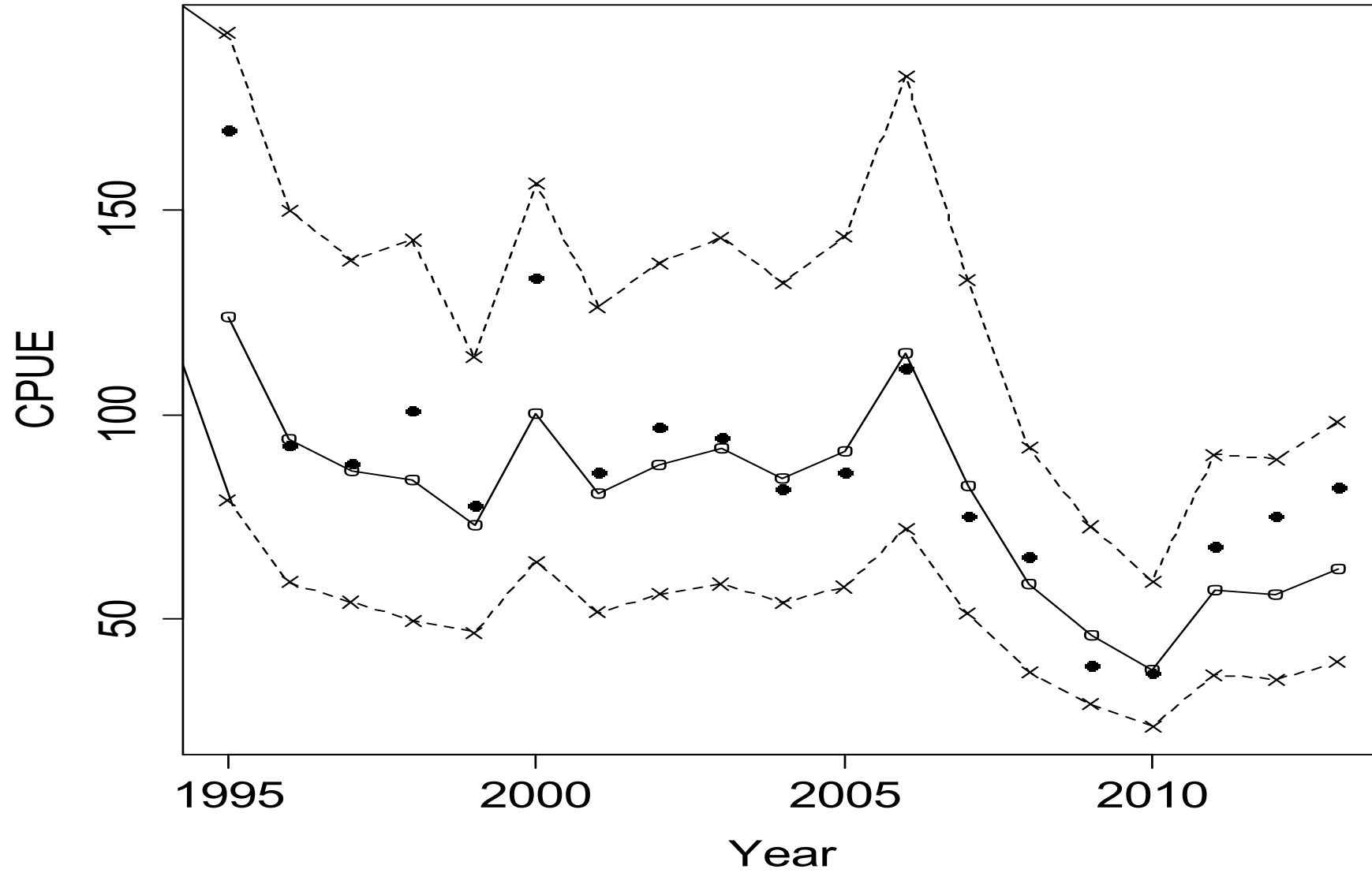
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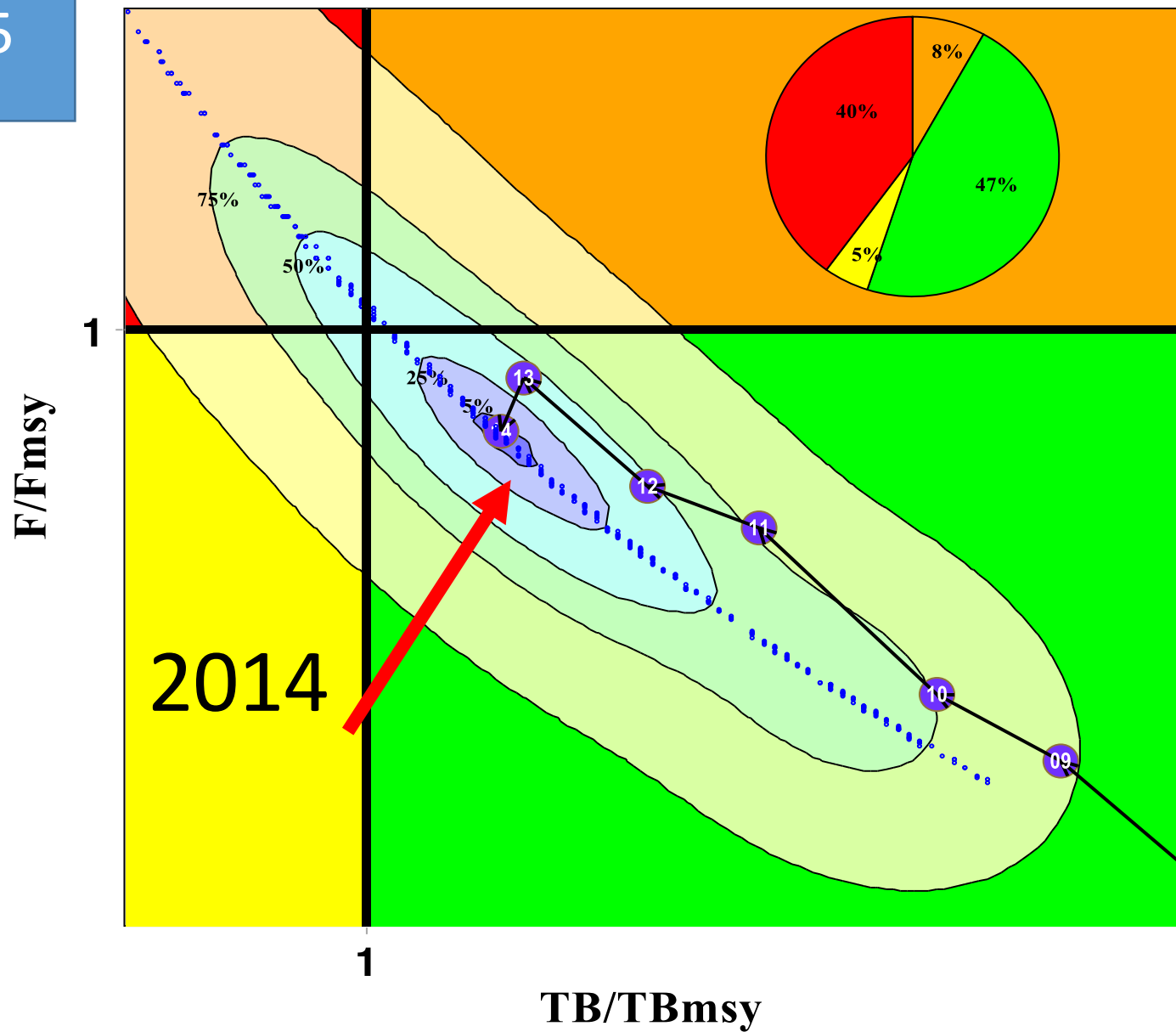
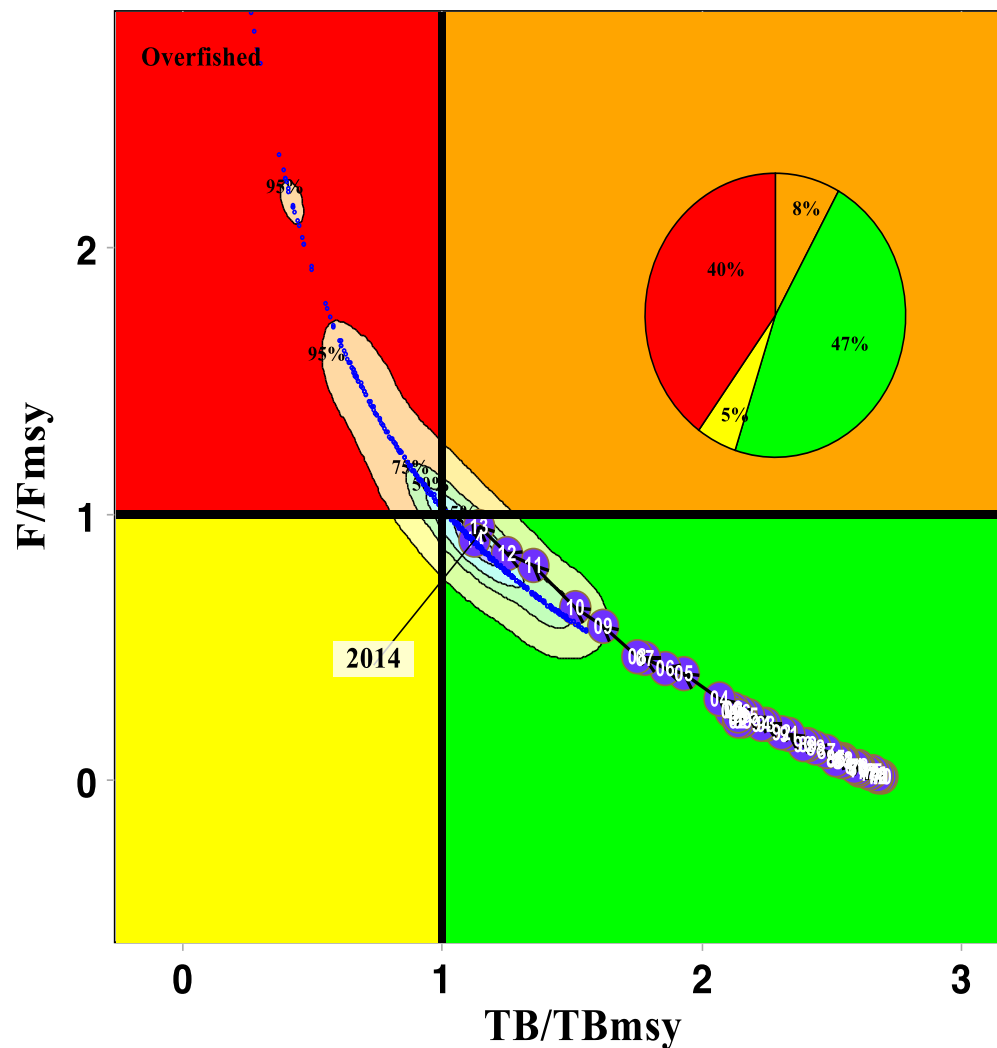
Kawakawa Catch (indian Ocean) (tons) by country



**Annual standardized CPUE (solid line)
with its 95% CI (Confidential Intervals) (broken line)
and nominal CPUE (black dots)**



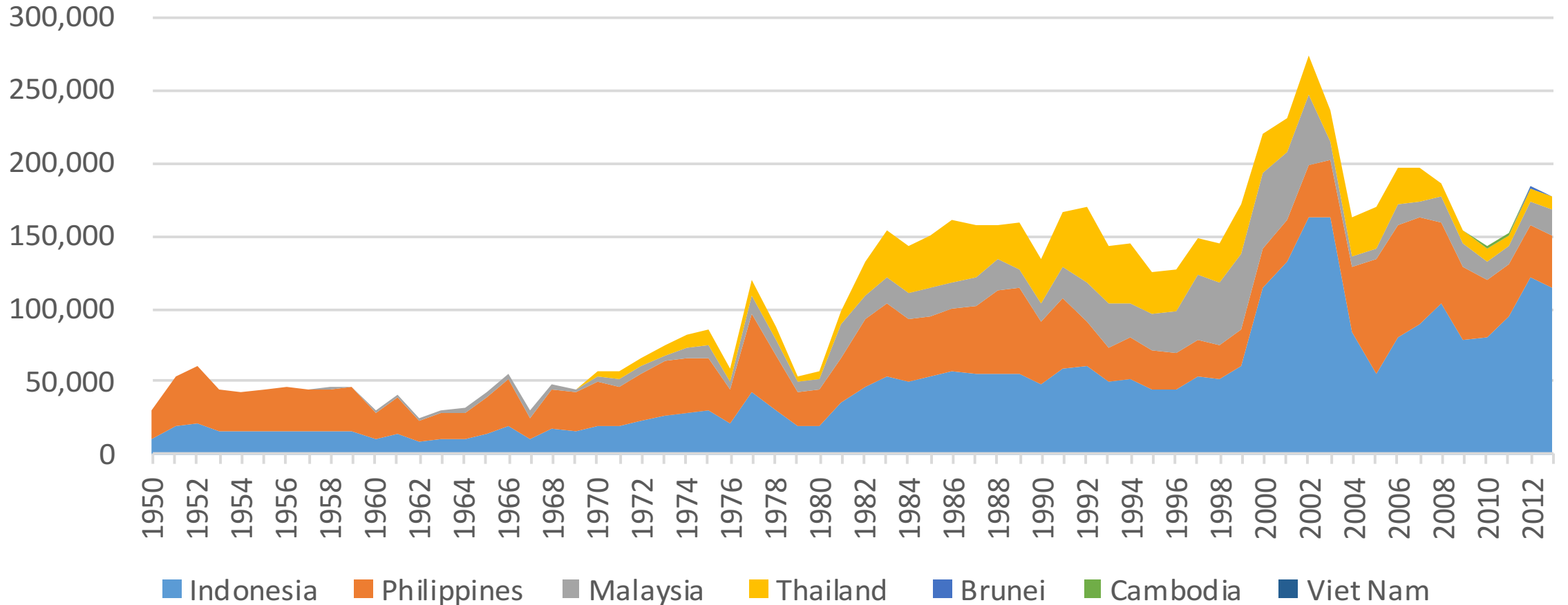
KAW (Indian) Green (Safe)
 $TB/TB_{msy}=1.28$ and $F/F_{msy}=0.75$



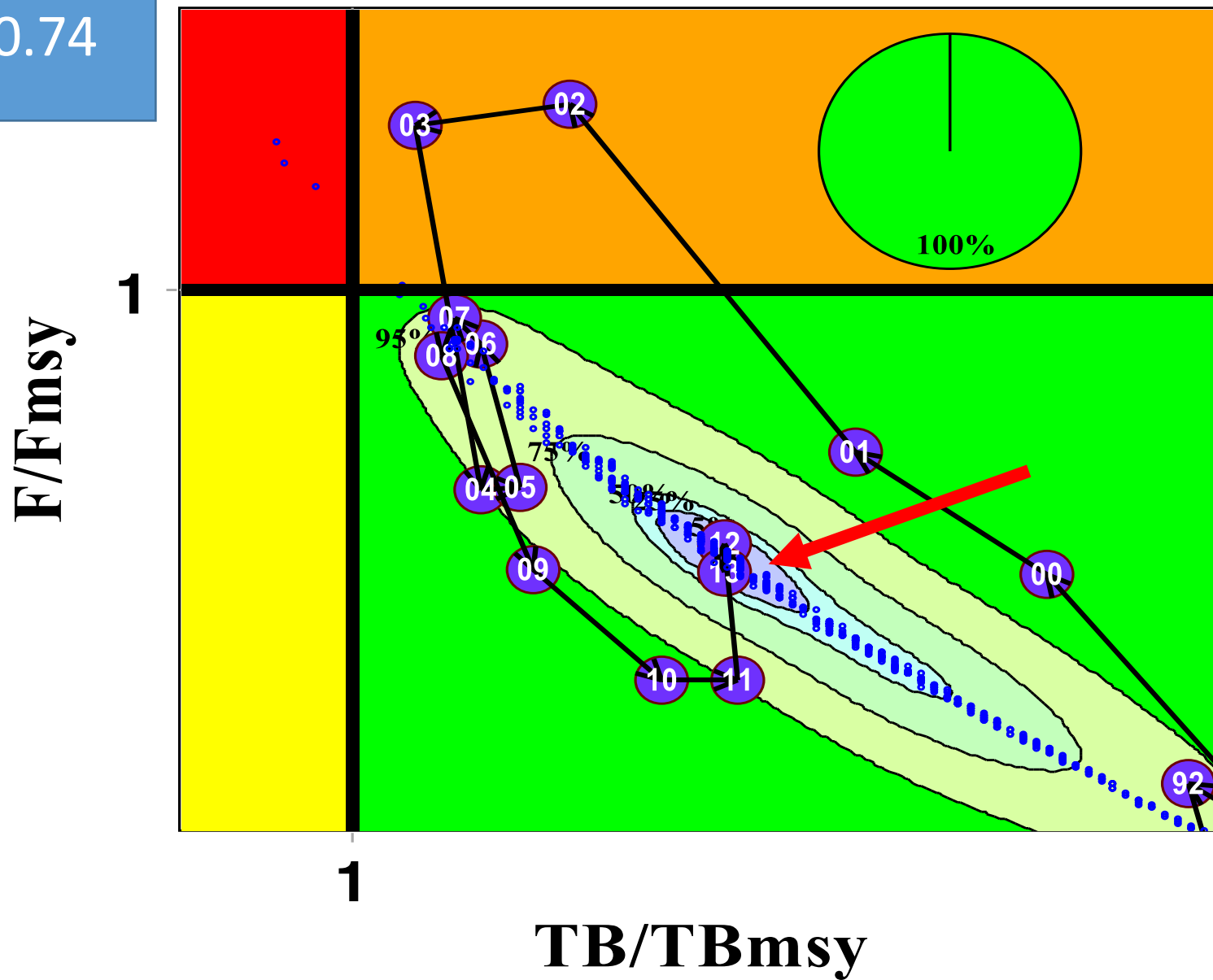
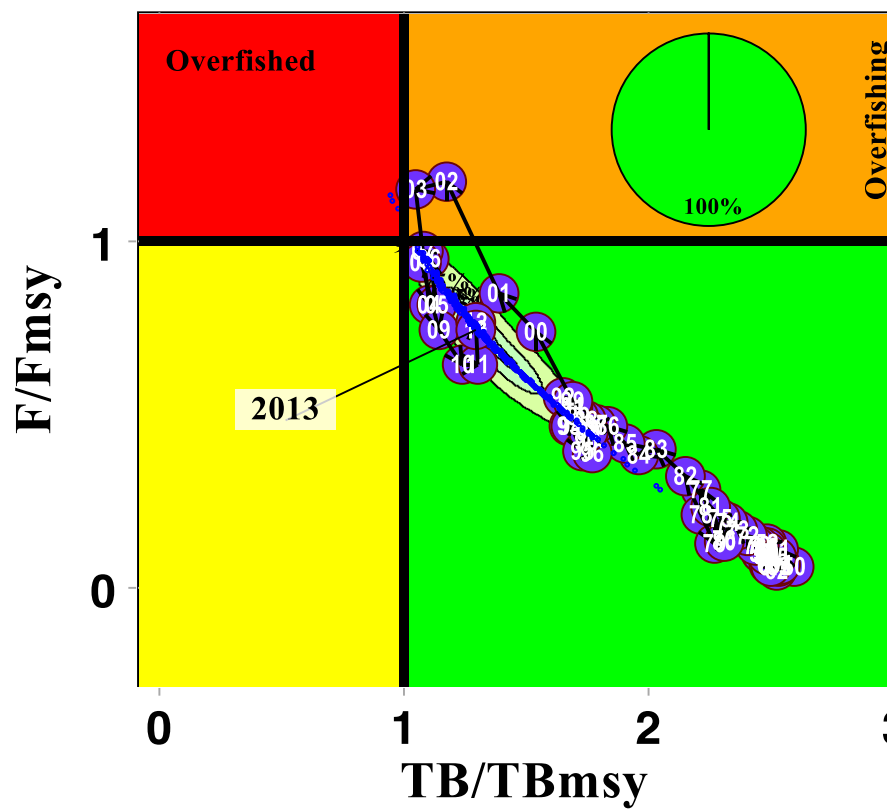
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KAW catch (Pacific) (SE Asia)(tons)



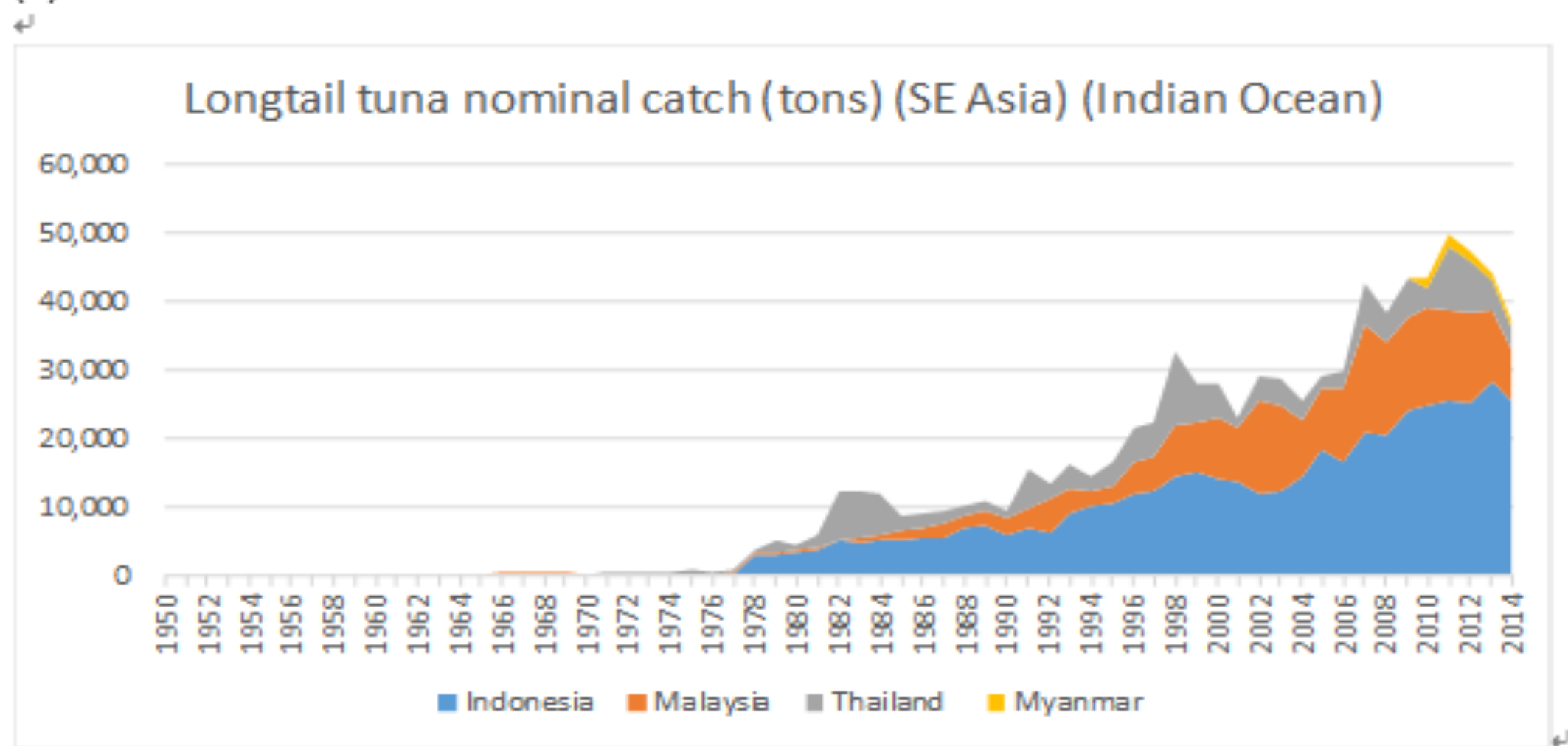
KAW (Pacific) Green (very Safe)
 $TB/TB_{msy}=1.29$ and $F/F_{msy}=0.74$



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(1) Catch

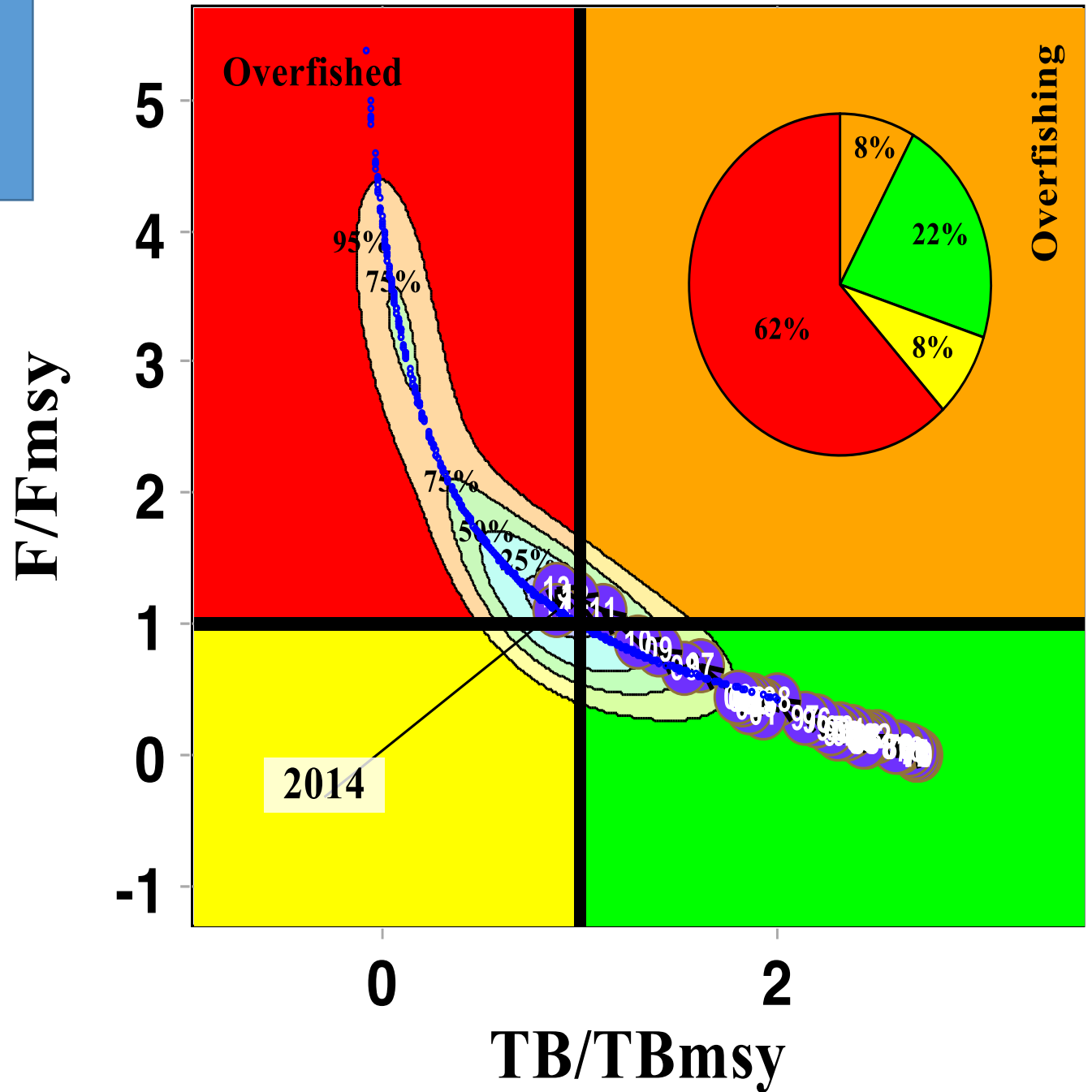


Note: Based on IOTC and data coordinators. We used the data from 1970 for stock assessments as the data before 1970 is nil.

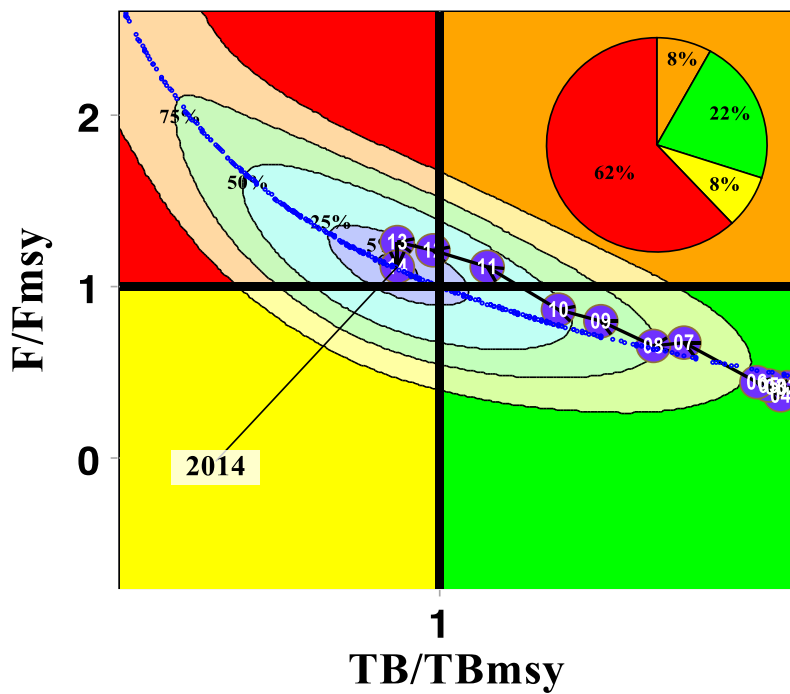
Fig. 17 Longtail tuna catch trend by country (SEAFDEC SE Asia water in the Indian Ocean)

LOT (Indian)

Red (overfished and overfishing)
 $TB/TB_{msy}=0.89$ and $F/F_{msy}=1.11$

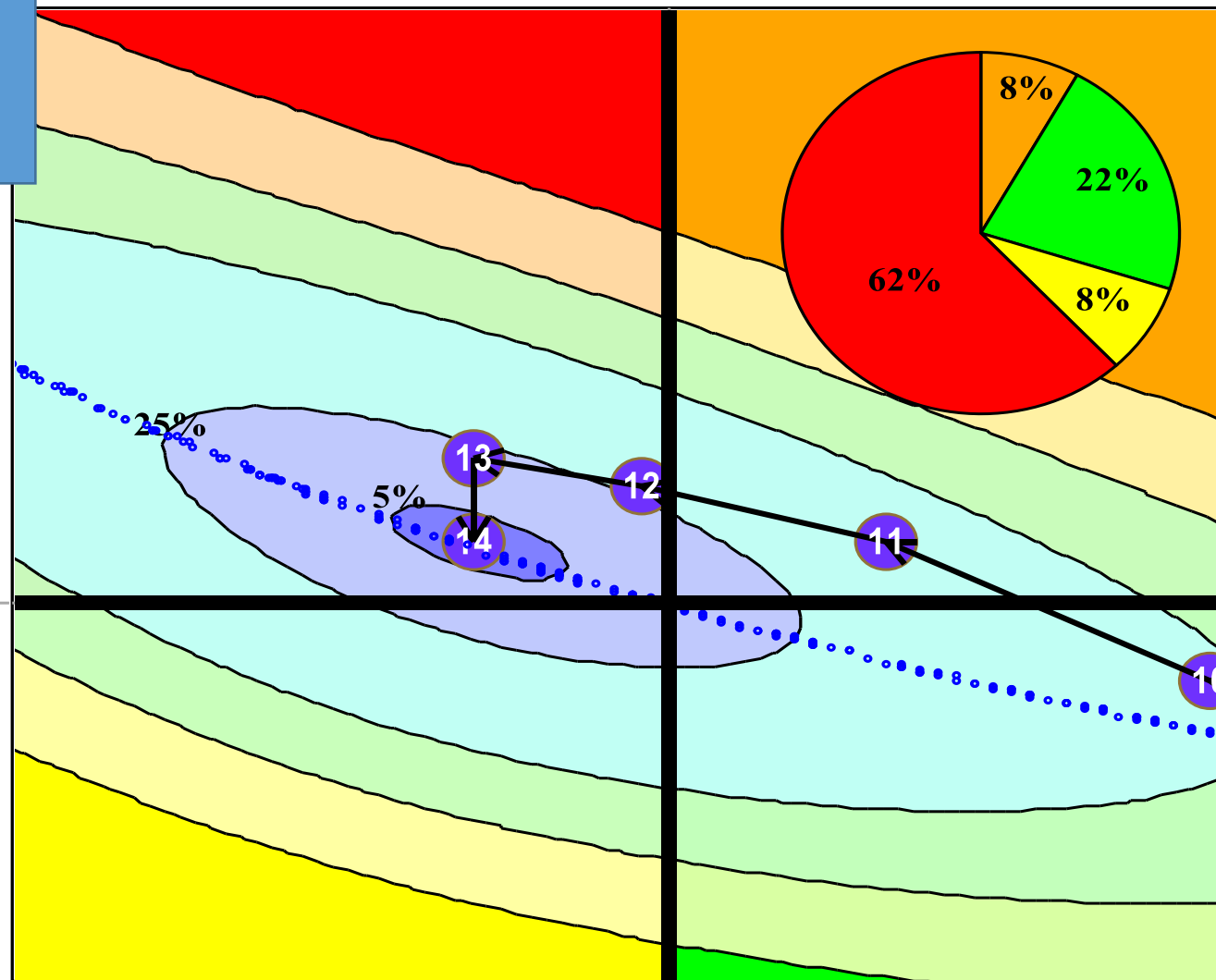


Red (overfished and overfishing)
 $TB/TB_{msy}=0.89$ and $F/F_{msy}=1.11$



F/F_{msy}

1



TB/TB_{msy}

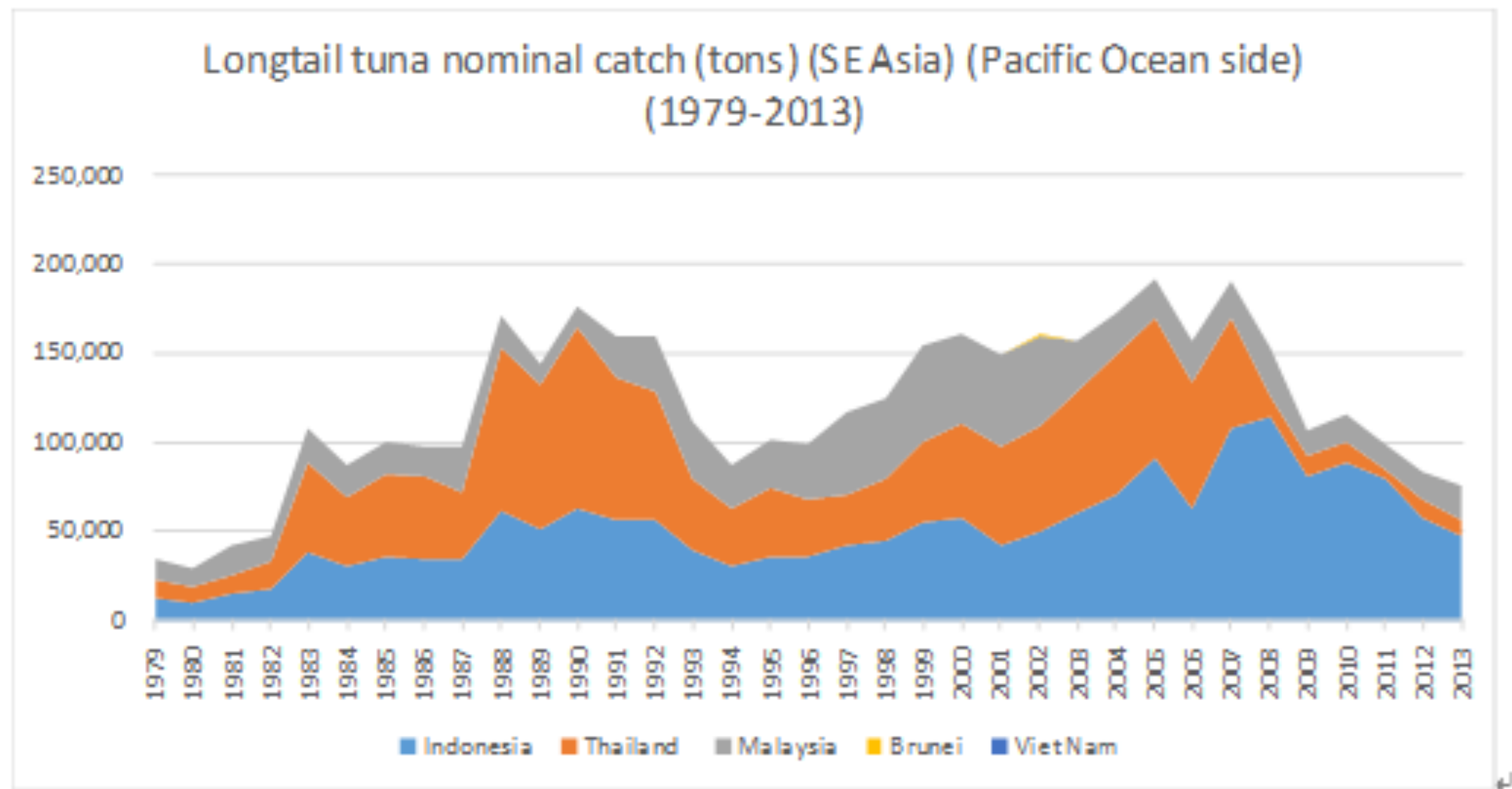
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(1) CATCH ↵

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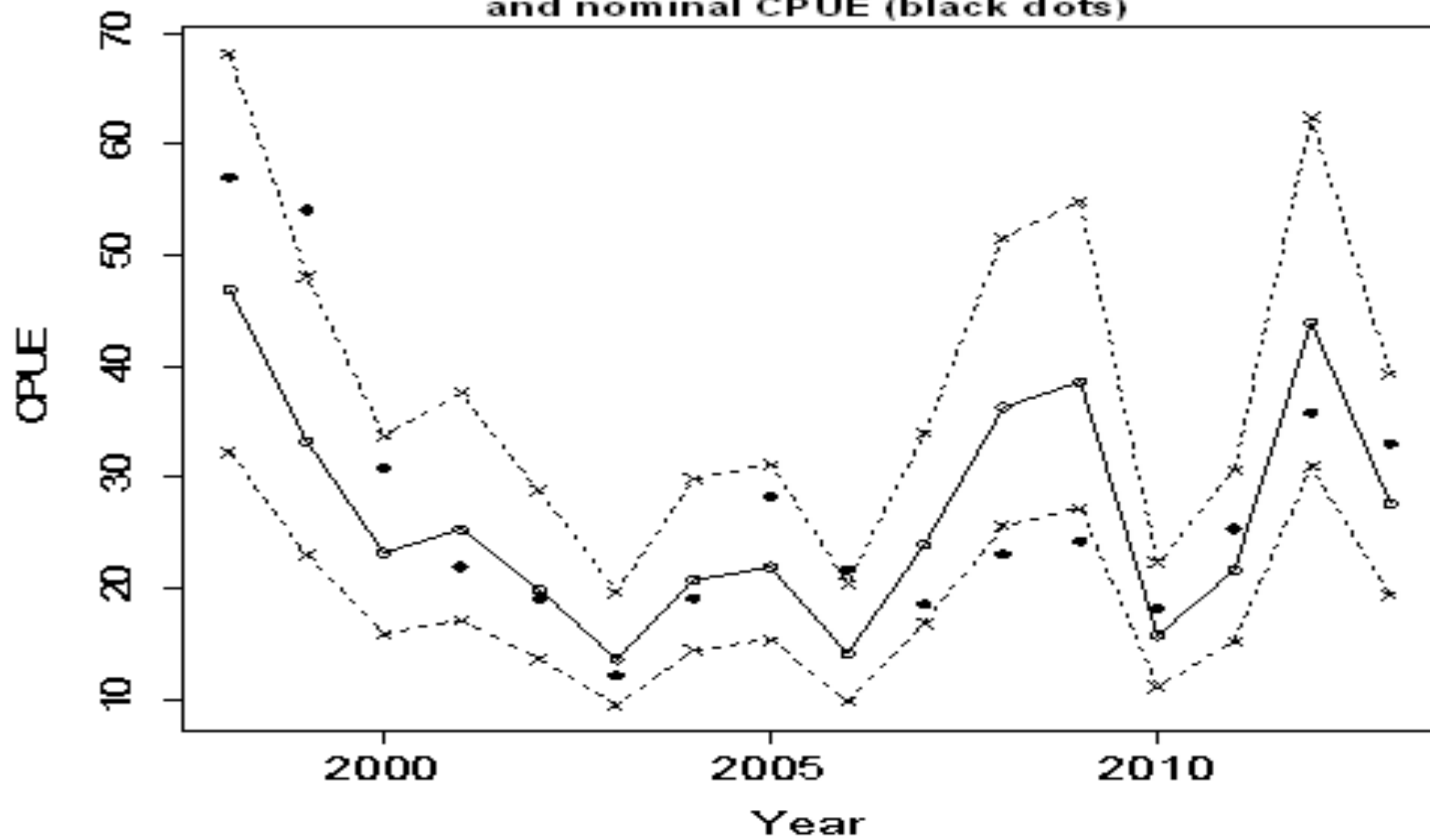


Note: Based on FAO and data coordinators. ↵

We used the data from 1979 as the data before 1970 are incomplete ↵

Fig 28

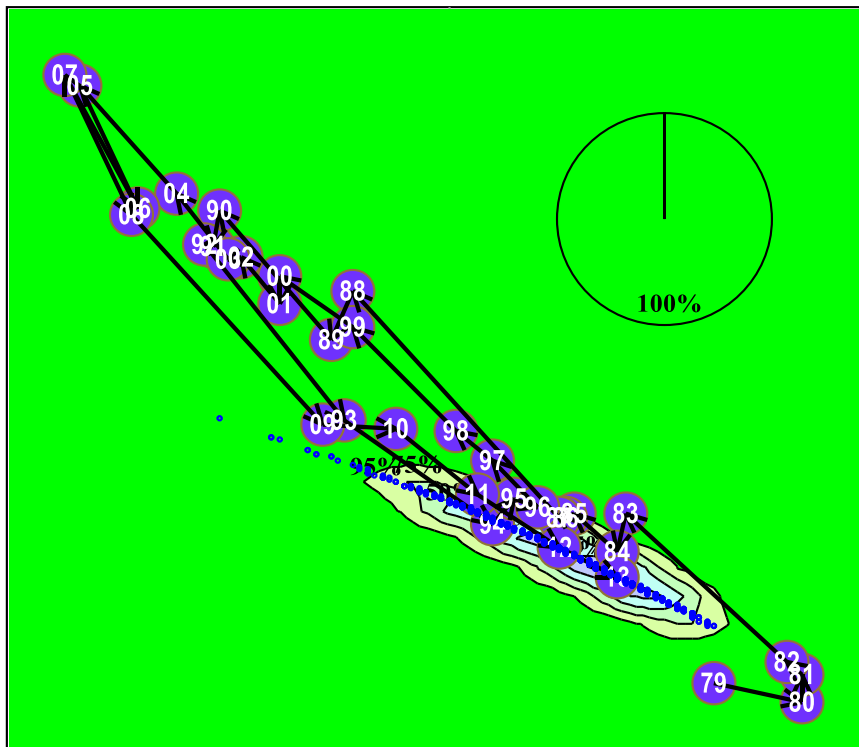
Annual standardized CPUE (solid line)
with its 95% CI (Confidential Intervals) (broken line)
and nominal CPUE (black dots)



LOT (Pacific) Green (very safe)
 $TB/TB_{msy}=2.22$ and $F/F_{msy}=0.18$

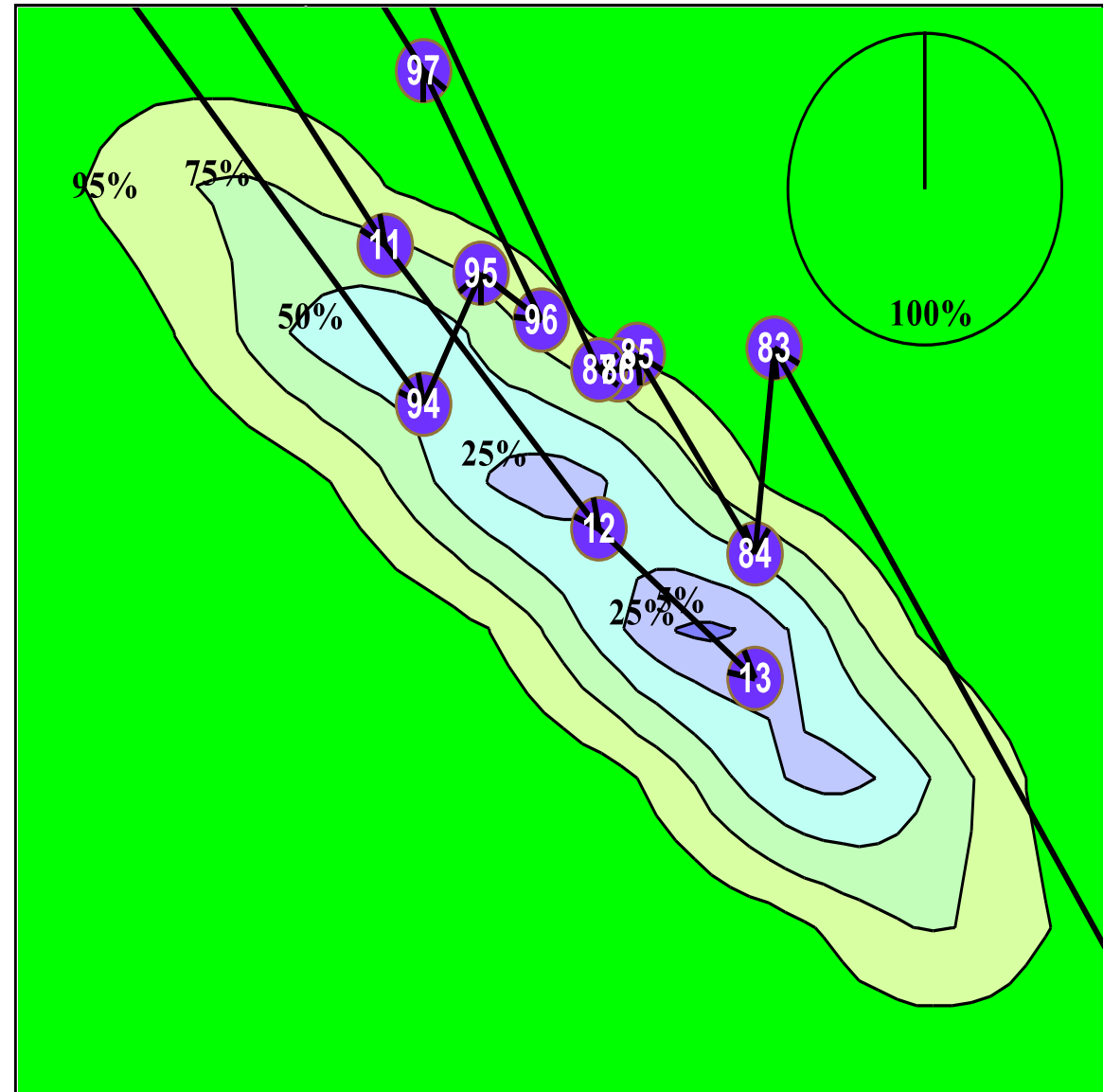


F/Fmsy



2
TB/TBmsy

F/Fmsy



2
TB/TBmsy

Ko
So

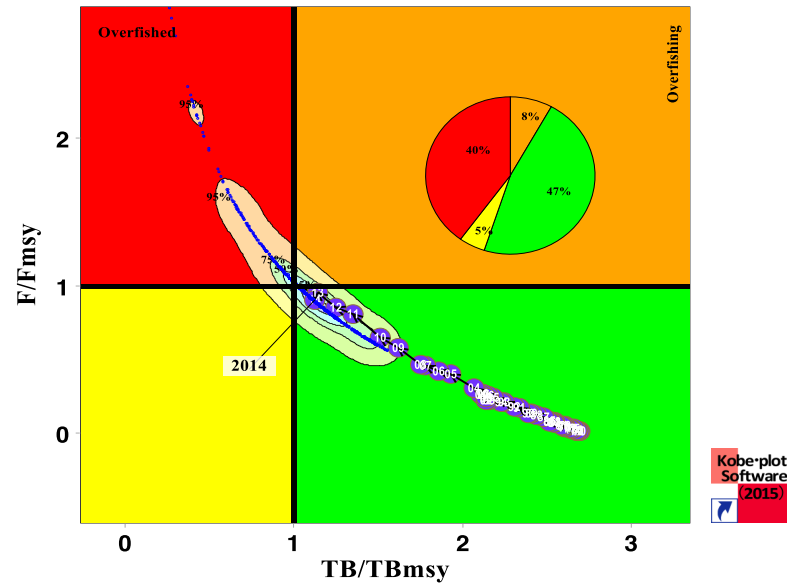


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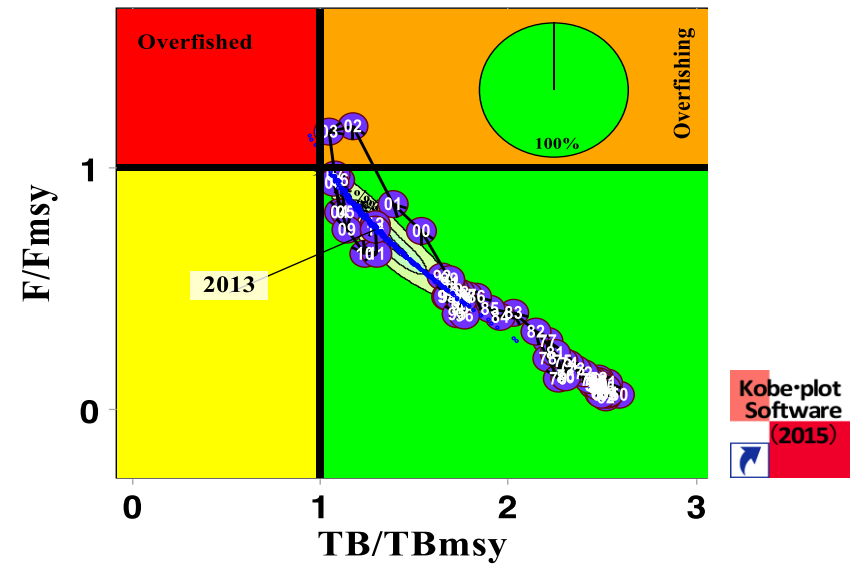
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KAW

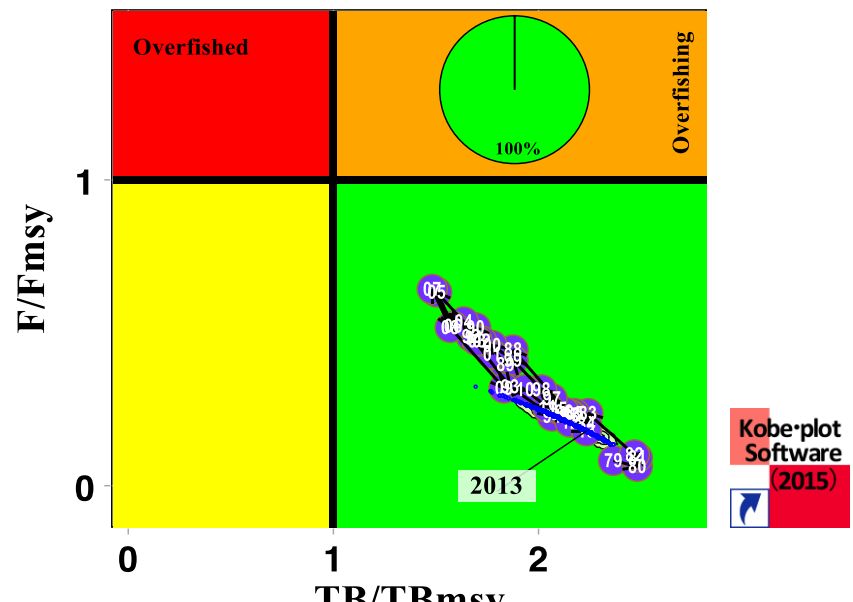
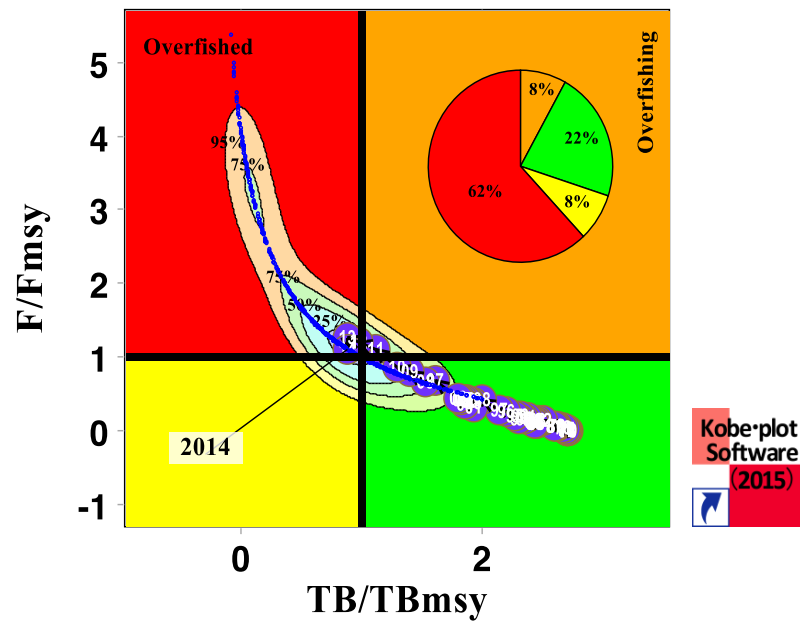
Indian

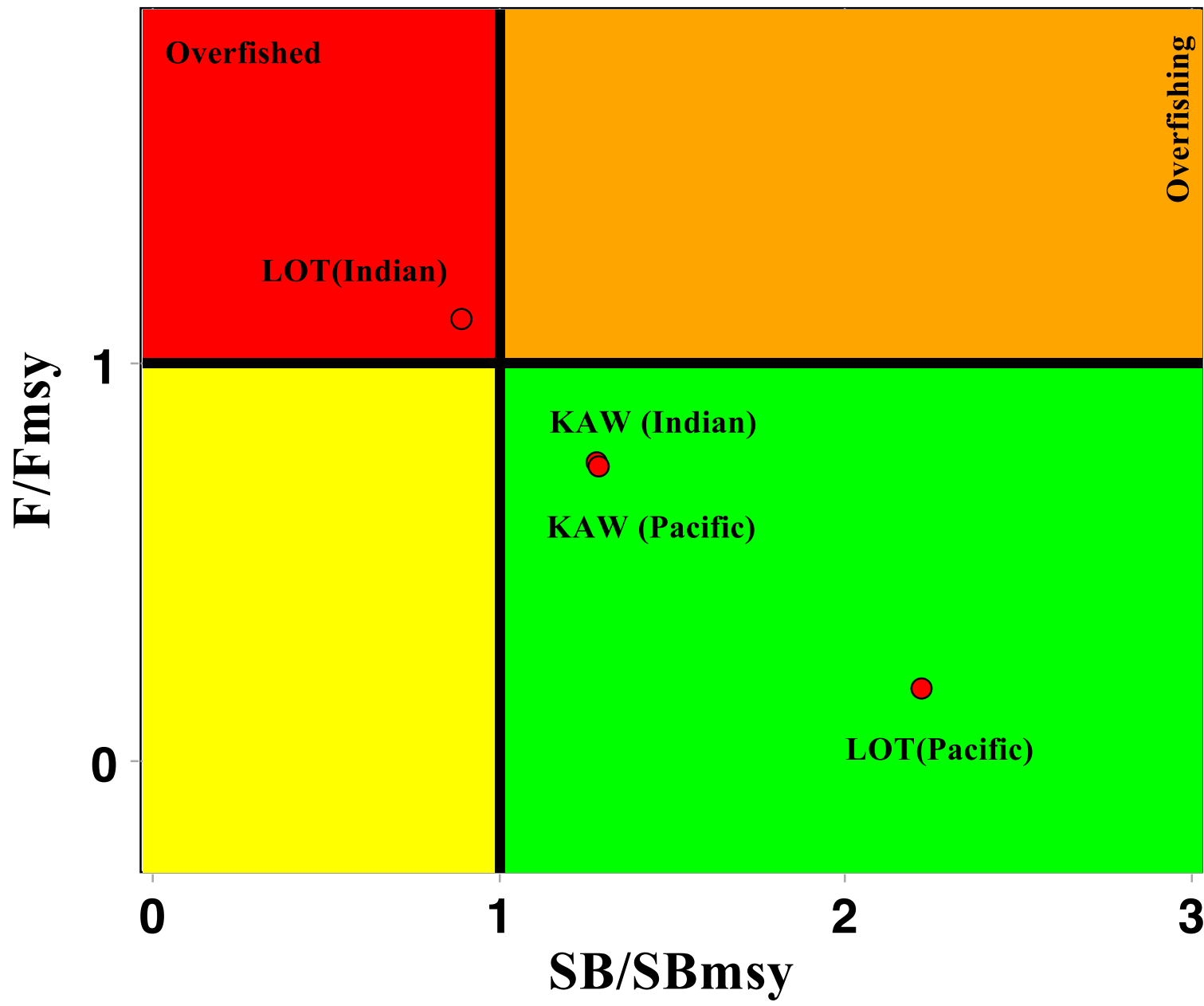


Pacific



LOT





Thank you....