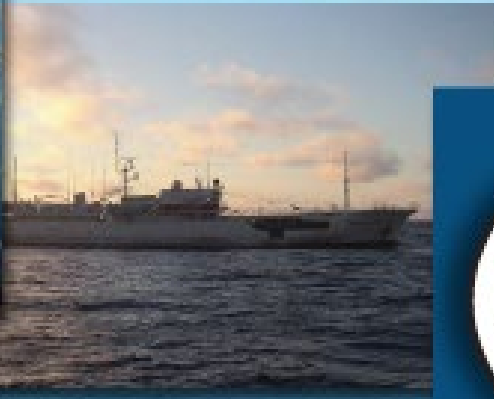


Comisión Interamericana del Atún Tropical
Inter-American Tropical Tuna Commission



INDICATORS OF STOCK STATUS FOR YELLOWFIN TUNA IN THE EASTERN PACIFIC OCEAN

Carolina Minte-Vera Haikun Xu, and Mark N. Maunder

Outline

- Background
- Methods
- Results
- Conclusion



Background

- Assessment results driven by longline-derived index
- There are issues with the index
- Skipjack and bigeye tuna monitored with indicators
- Indicators for yellowfin proposed

Methods: indicators

- Overall or by area (fishery definitions)

- **Purse-seine:**

Overall:

Fleet capacity

Number of sets by set type

By area and set type:

- Catch
- Effort (number of days fished)
- Nominal CPUE
- Index of abundance (from dolphin associated sets)
- Mean length

- **Longline:**

Overall:

Effort (number of hooks)

By area:

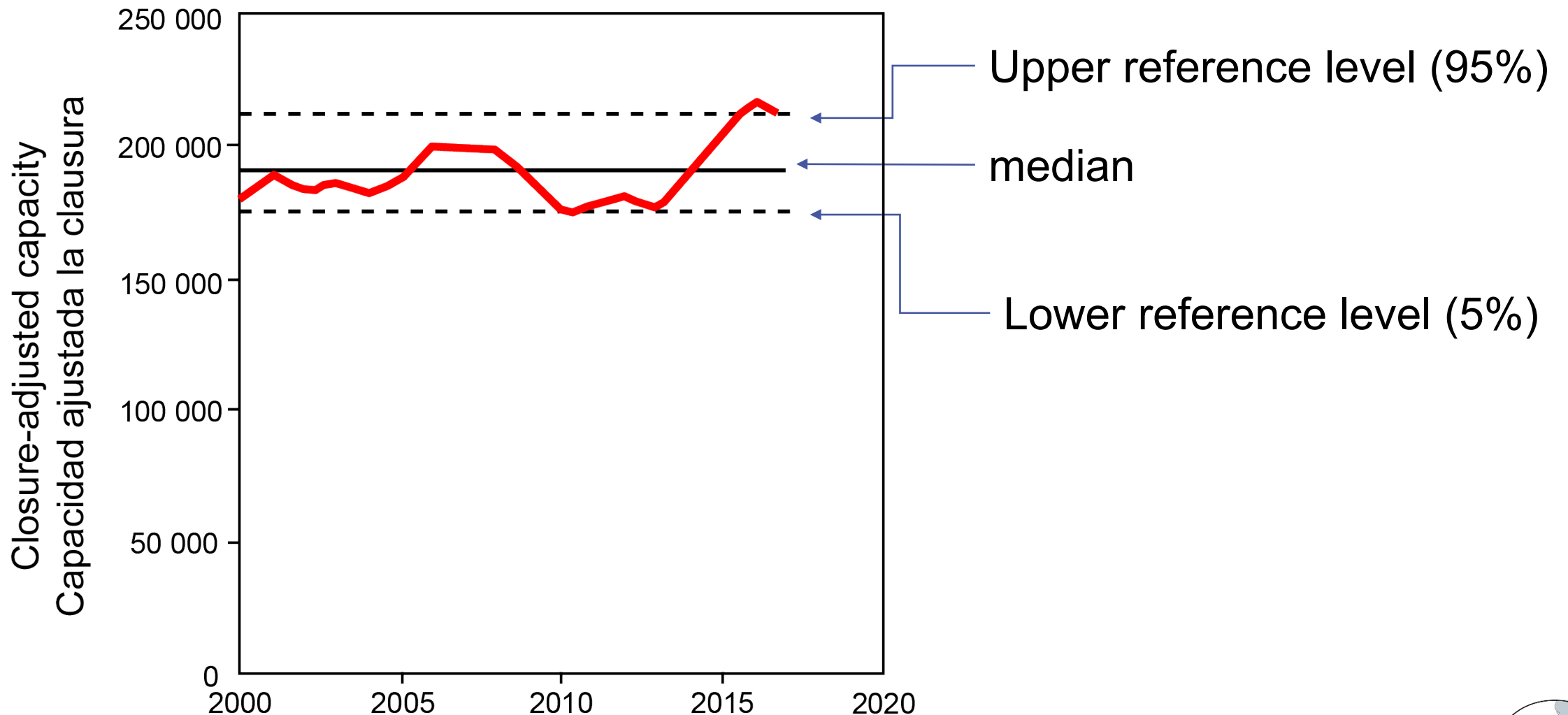
Catch

Index of abundance

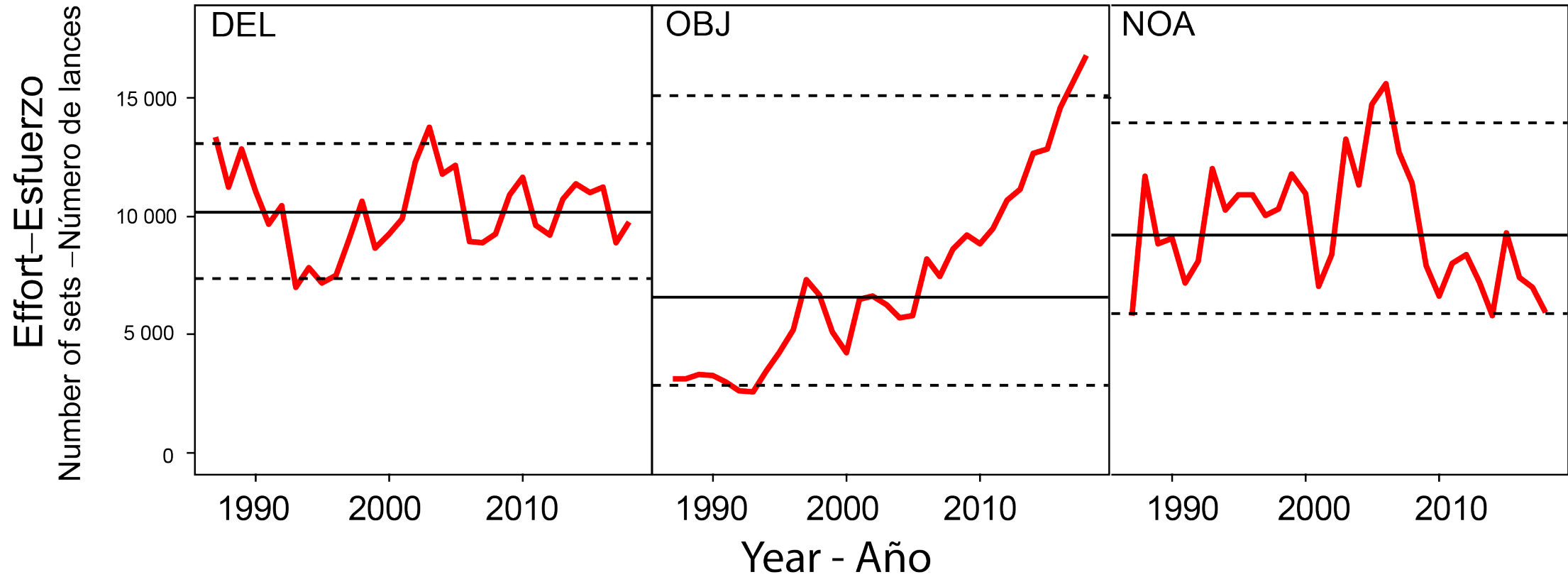
Mean length

- Reference levels: 5th and 95th percentiles, median also shown

Overall indicators purse-seine: capacity

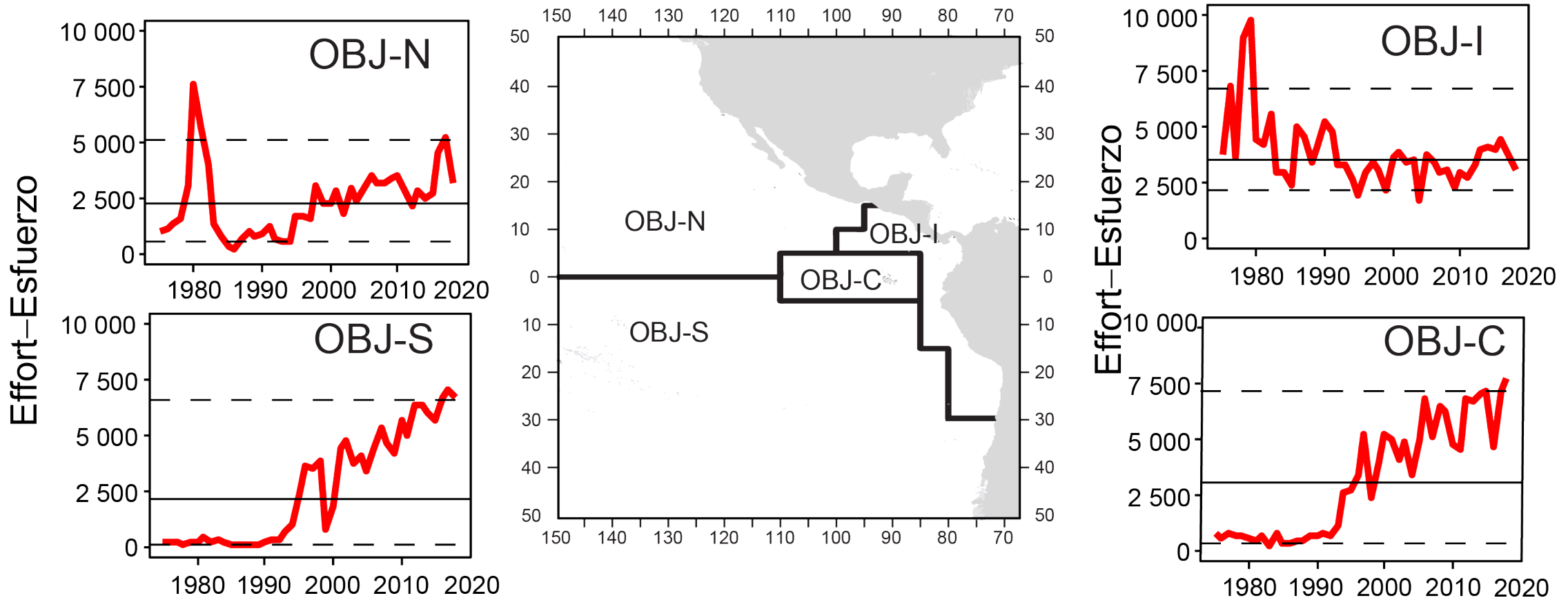


Overall indicators purse-seine: effort



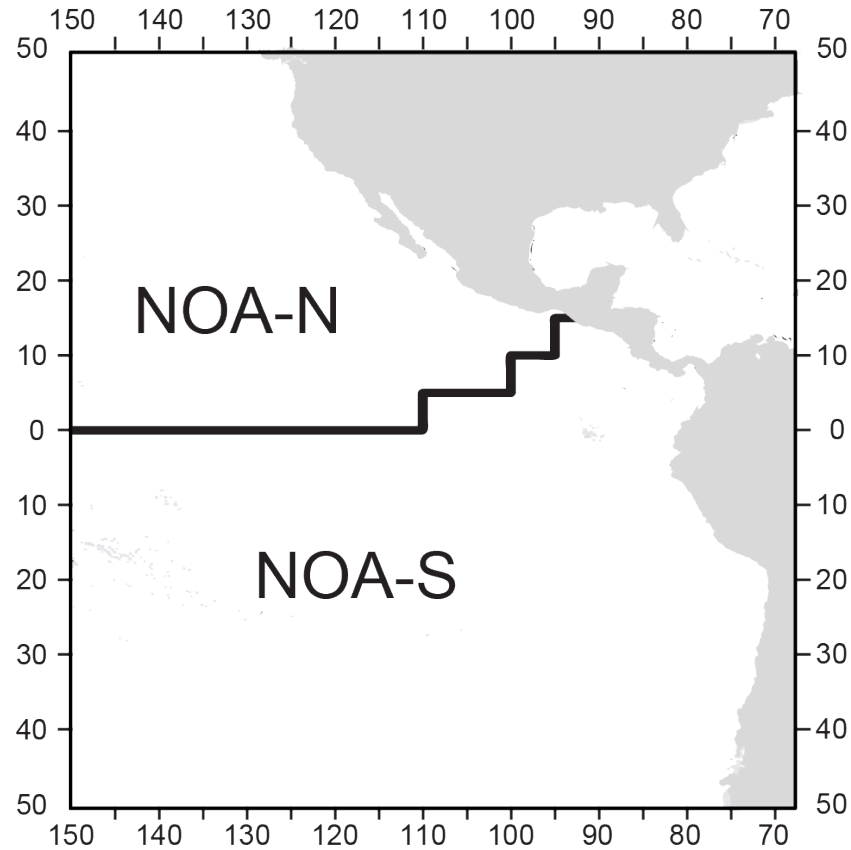
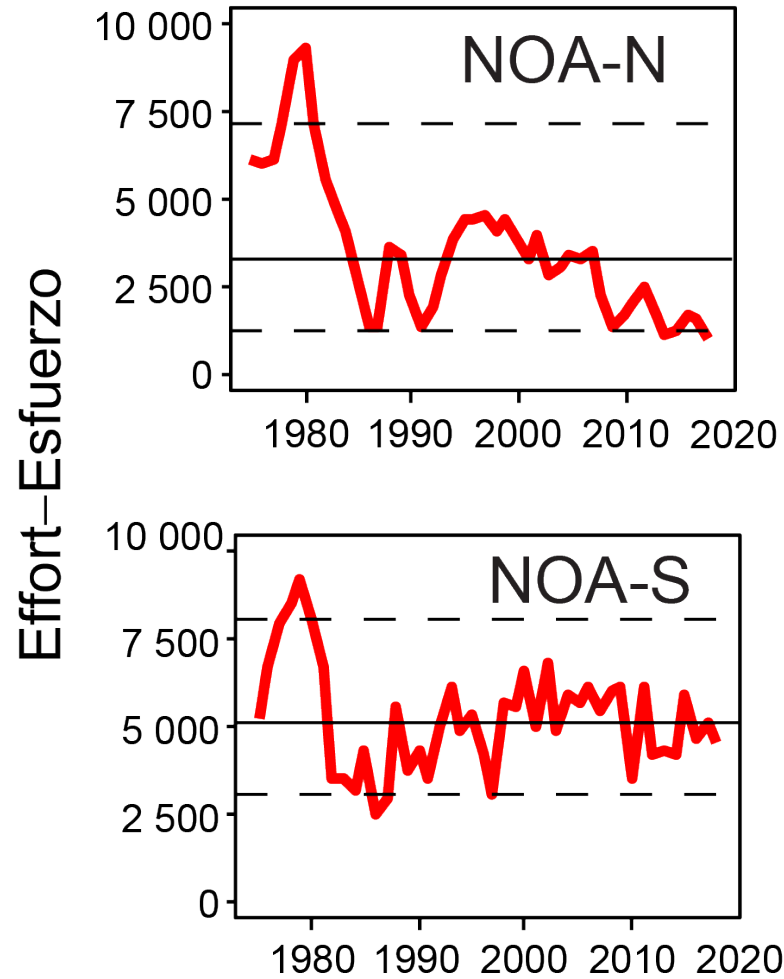
Purse-seine on floating objects: effort

Floating objects-Objetos flotantes

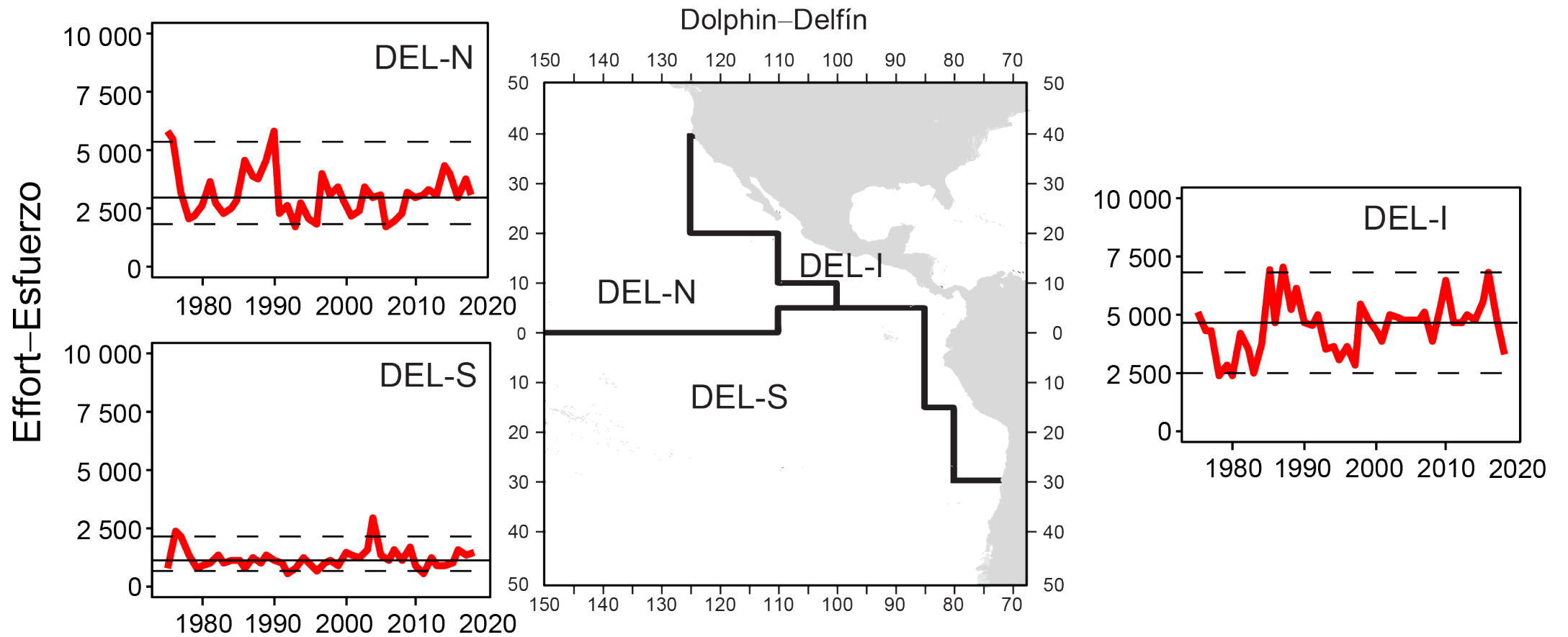


Purse-seine unassociated: effort

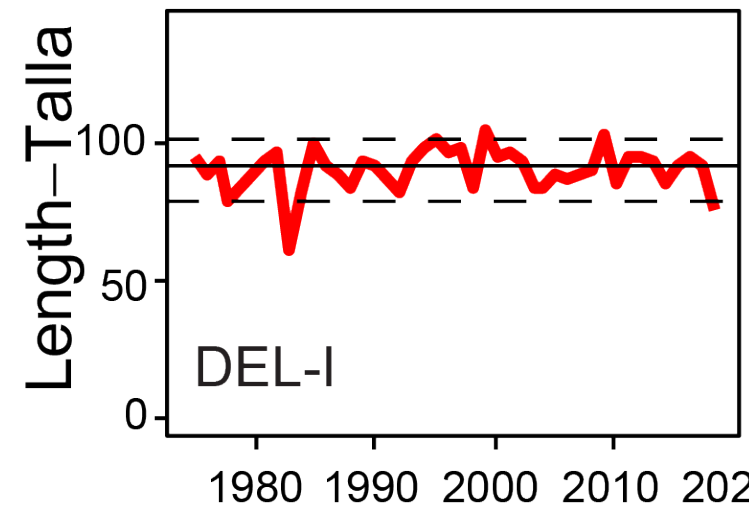
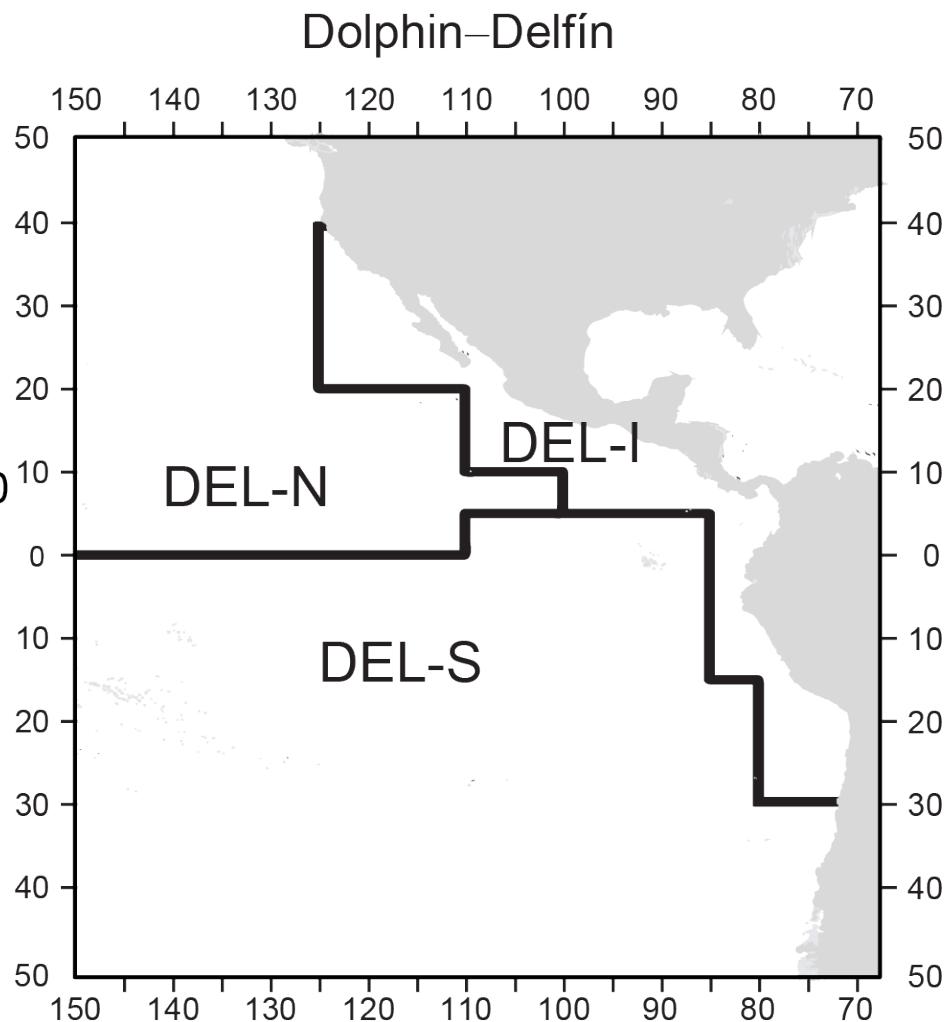
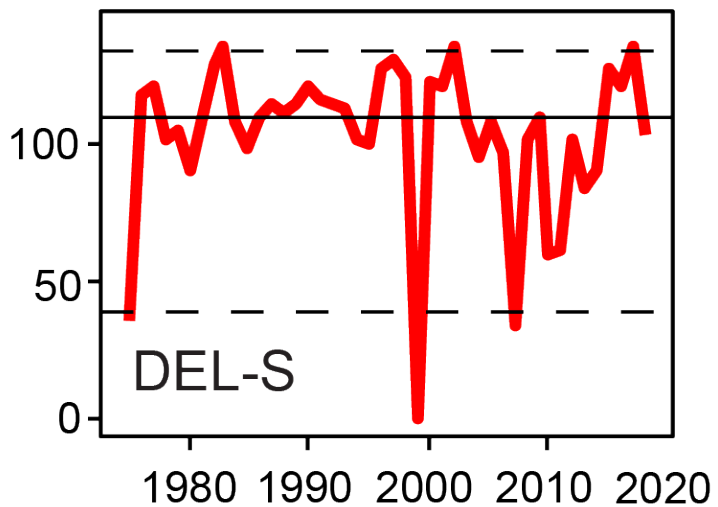
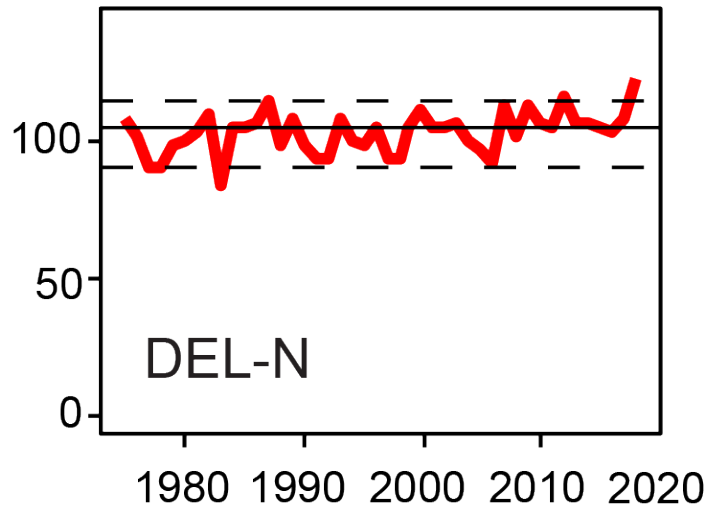
Unassociated-No asociado



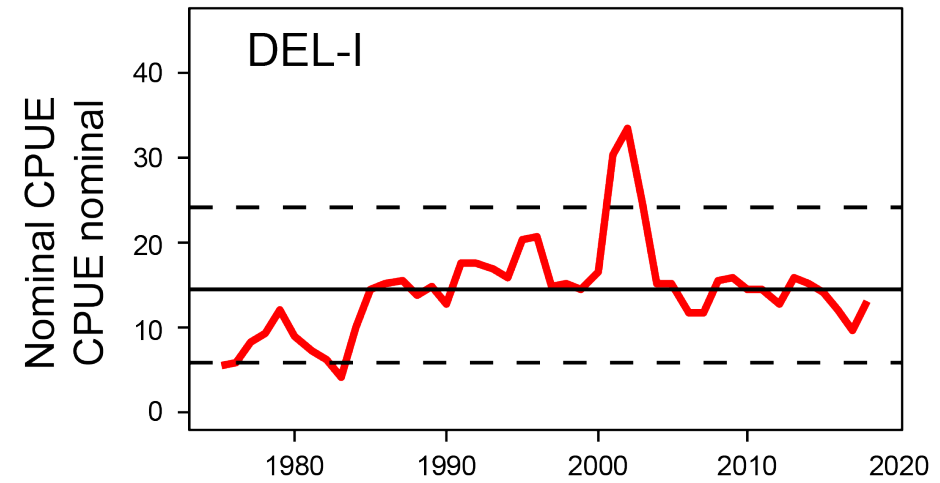
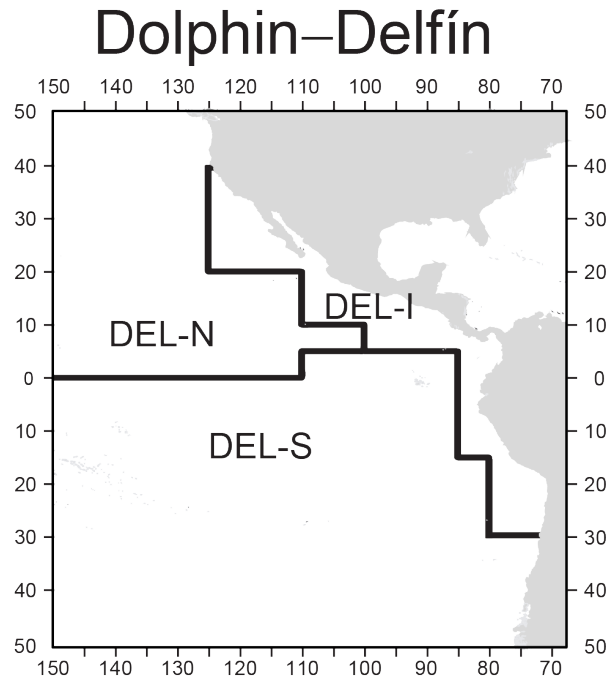
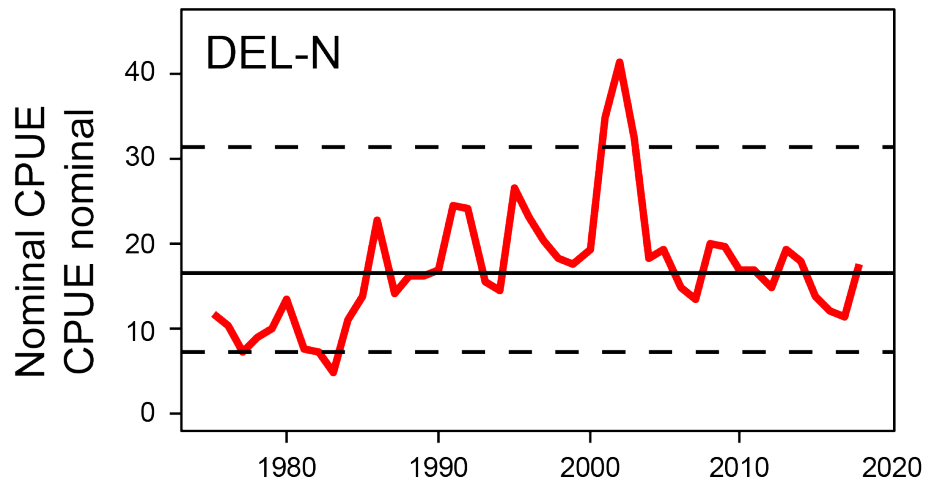
Purse-seine unassociated: effort



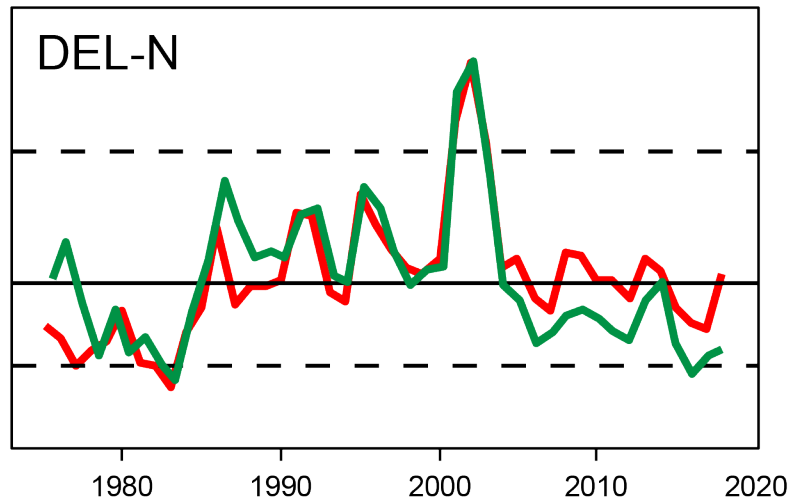
Purse-seine on dolphins: length



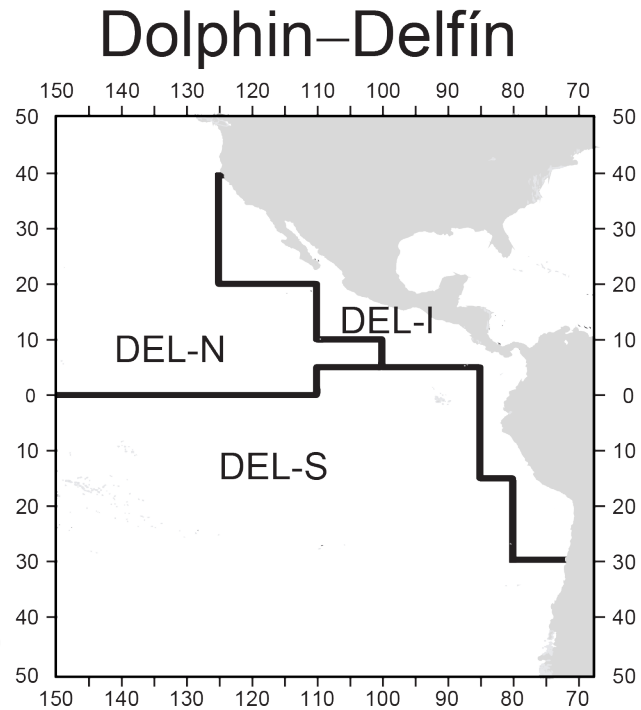
Purse-seine on dolphins: CPUE



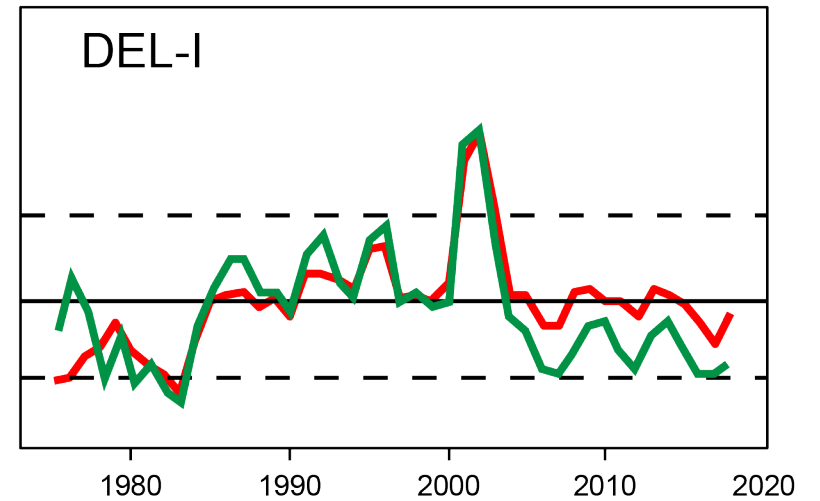
Purse-seine on dolphins: CPUE



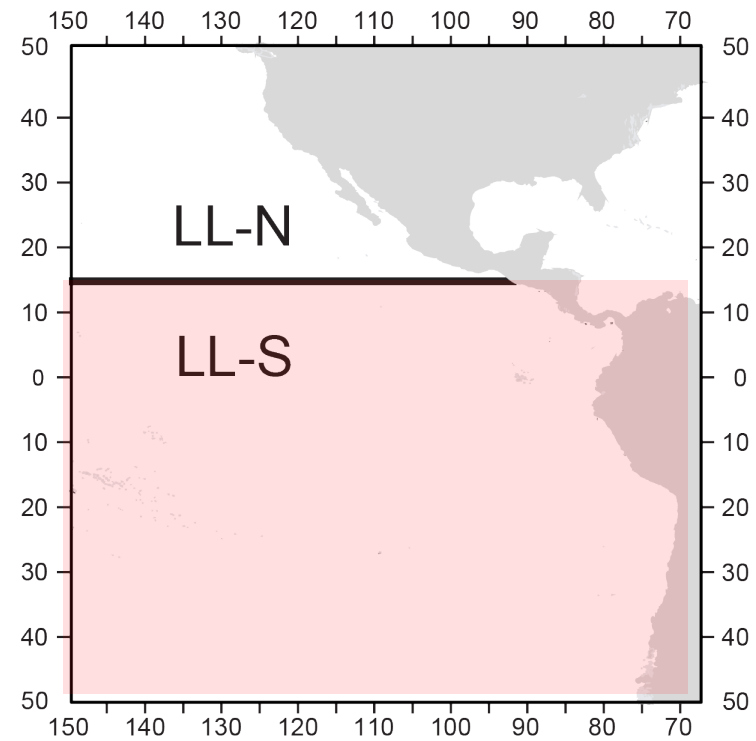
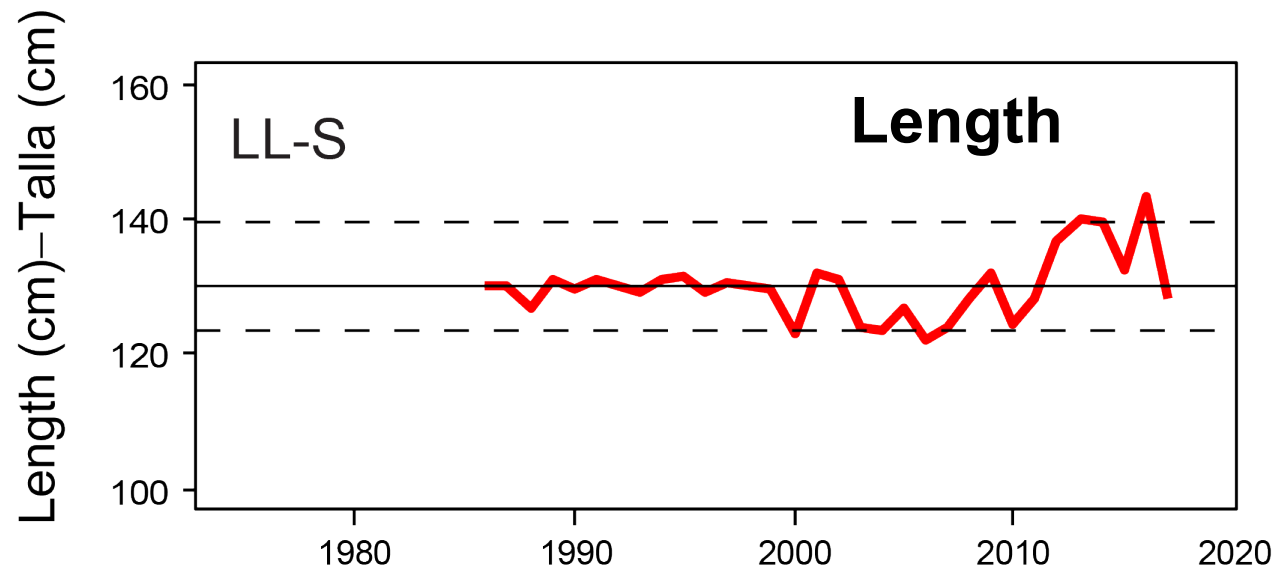
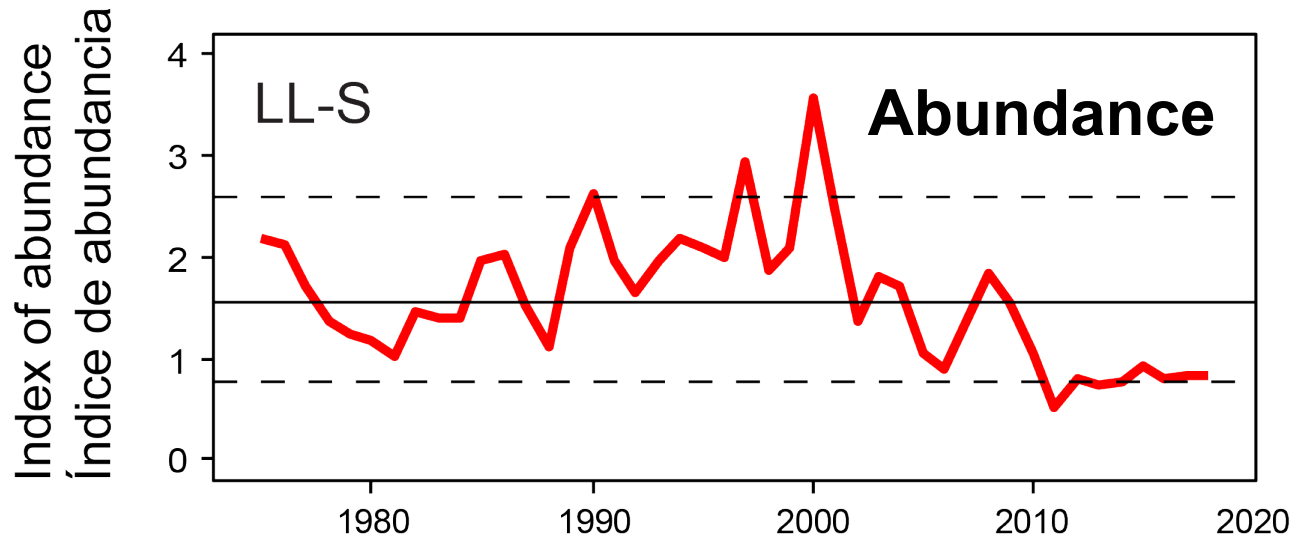
Nominal CPUE
CPUE nominal



Standardized CPUE
CPUE padronizada



Indicators for yellowfin tuna - longline



Summary

- The mix of fisheries is changing:
 - Floating object effort increasing (everywhere, except in OBJ-I)
 - Unassociated effort decreasing (mainly NOA-N)
- Indication of low abundance or other change:
 - Standardized CPUEs: longline and purse-seine on dolphins
- Indication of high abundance or other changes:
 - Average length: longline and purse-seine on dolphins (DEL-N)

Conclusion

- Some indicators point to low abundance (standardized cpue), others are inconsistent with that hypothesis (average size).
- Of concern is increase floating objects sets, which has implications for juvenile fishing mortality
- This effort increase should be addressed

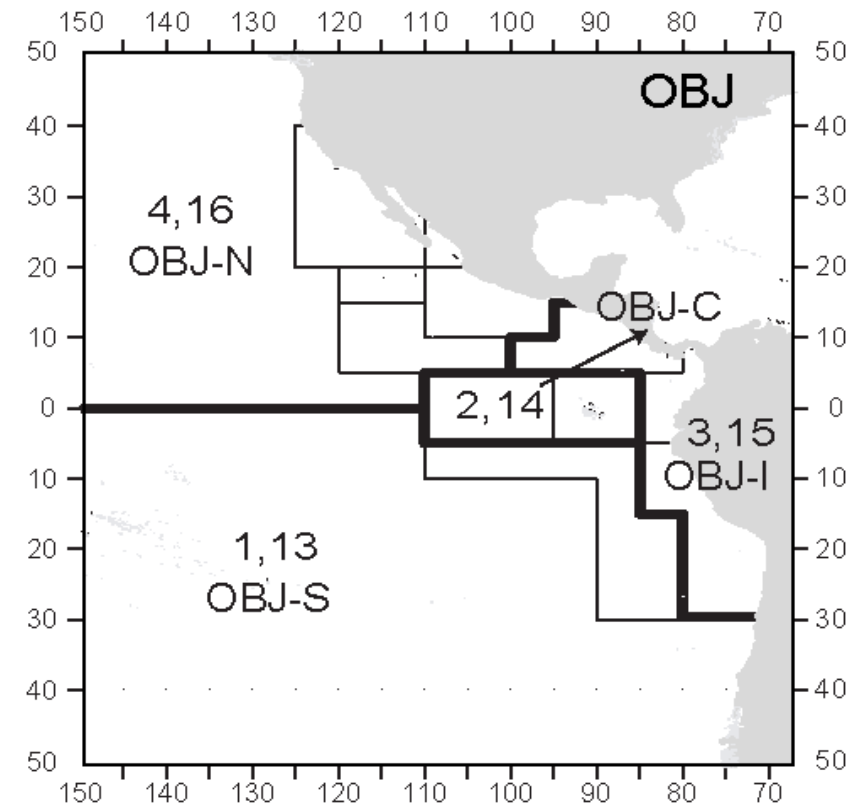
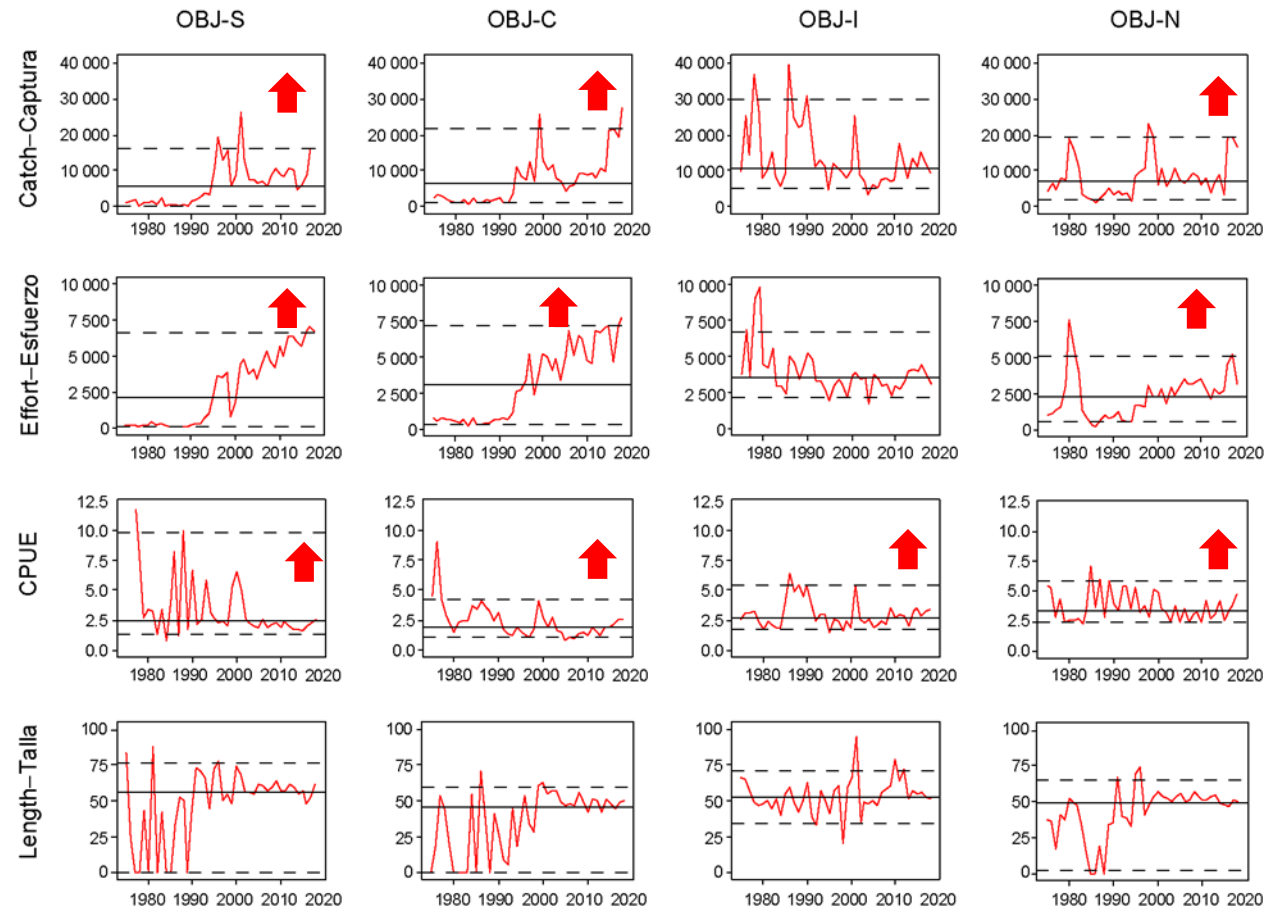


Thank you

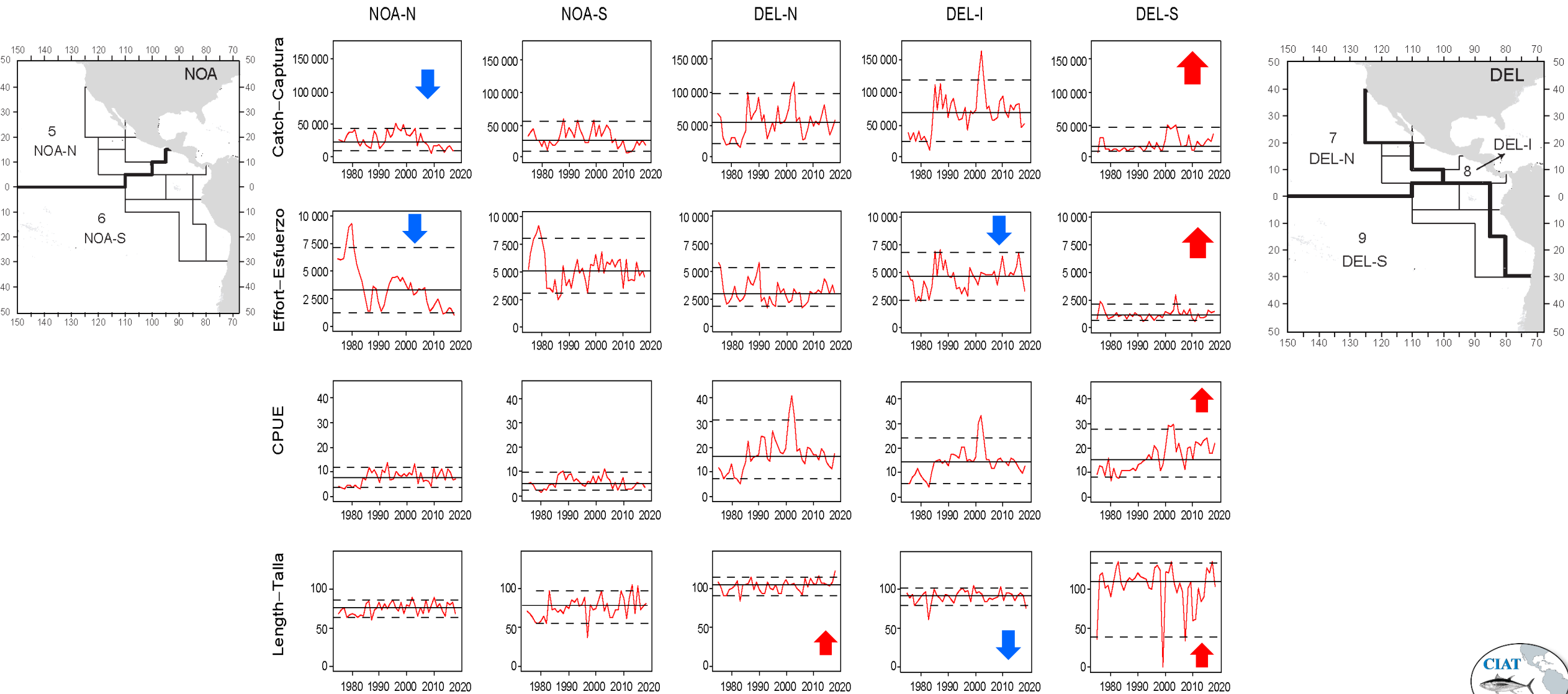


Extra slides

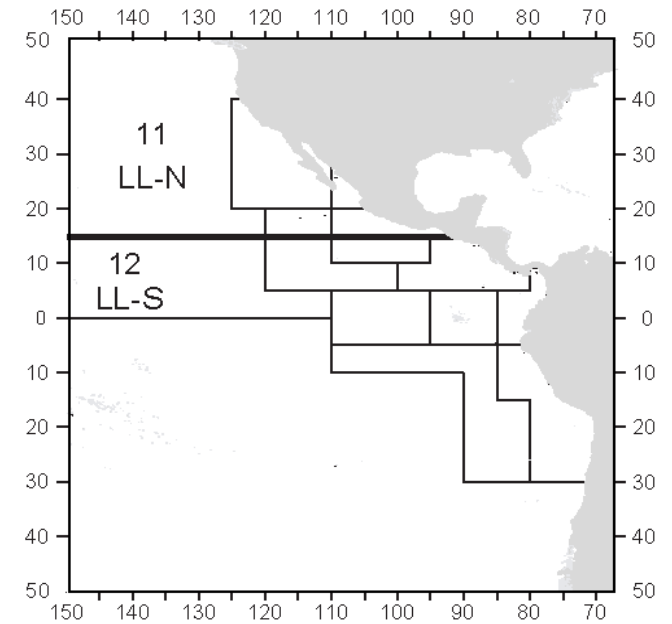
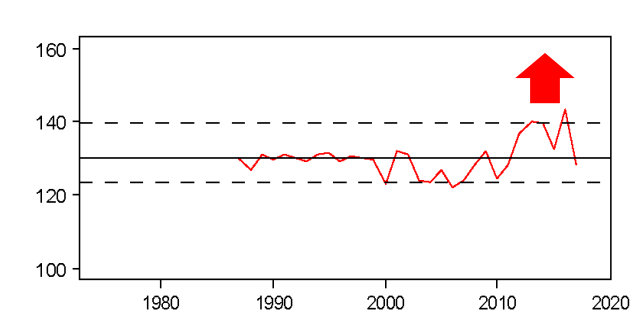
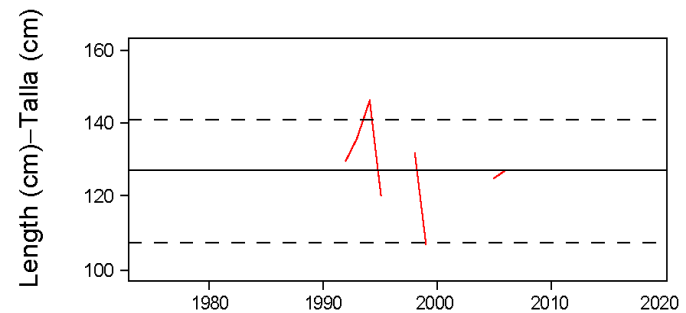
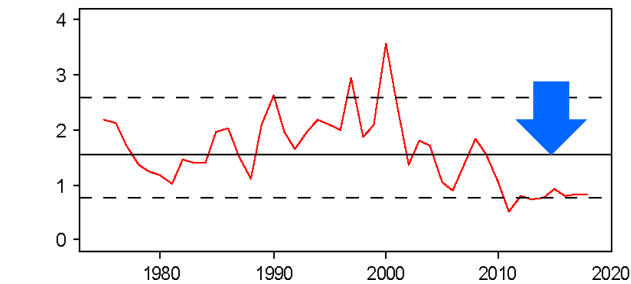
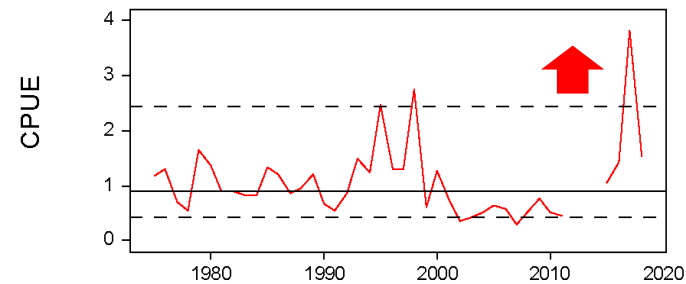
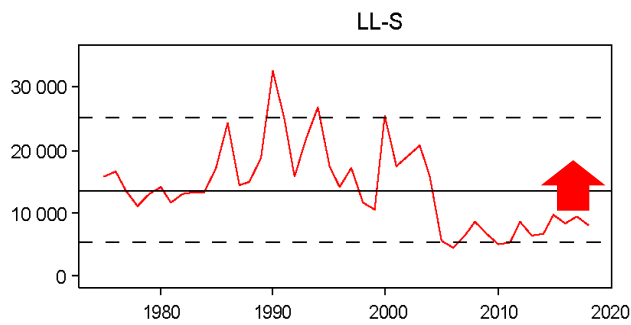
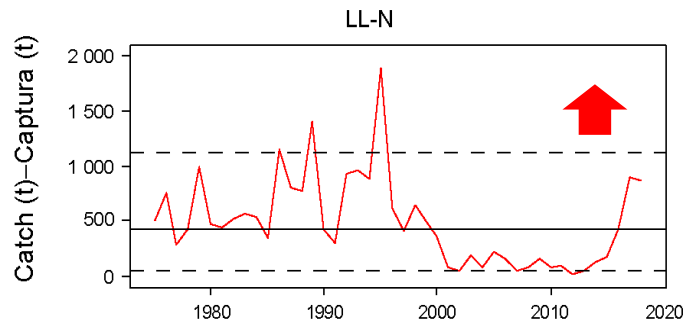
Indicators for yellowfin tuna - purse seine



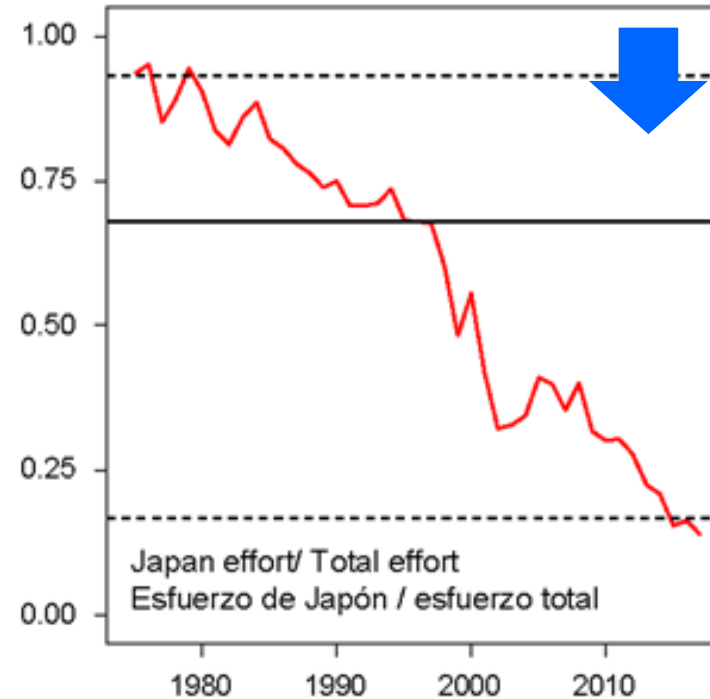
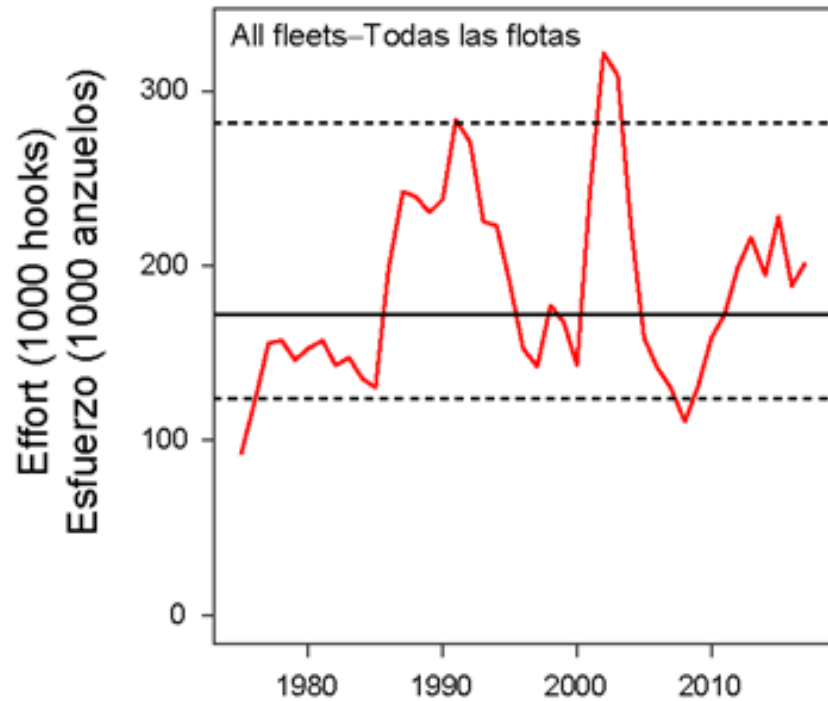
Indicators for yellowfin tuna - purse seine



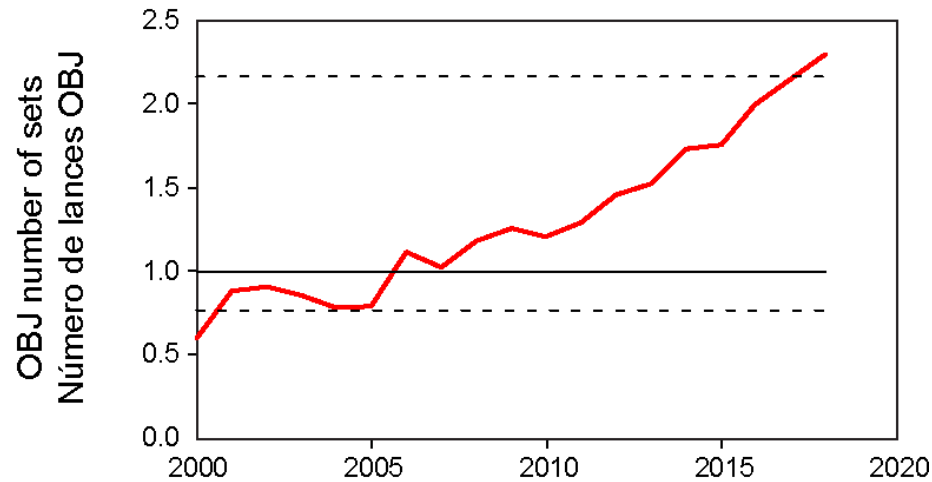
Indicators for yellowfin tuna - longline



Indicators for yellowfin tuna - longline

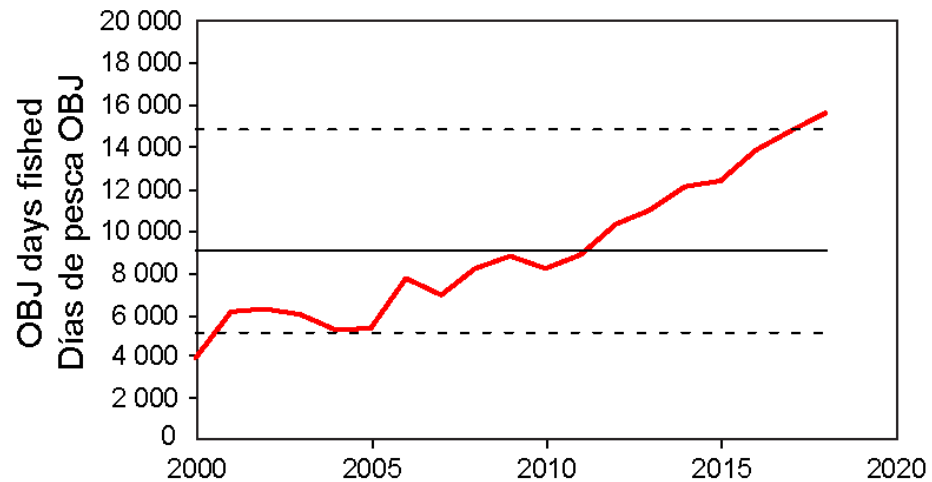


Indicators for yellowfin tuna

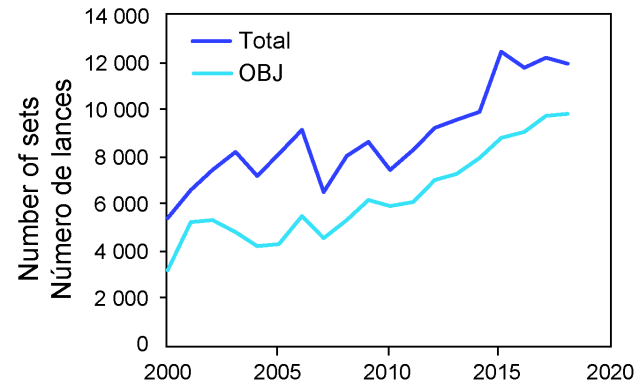
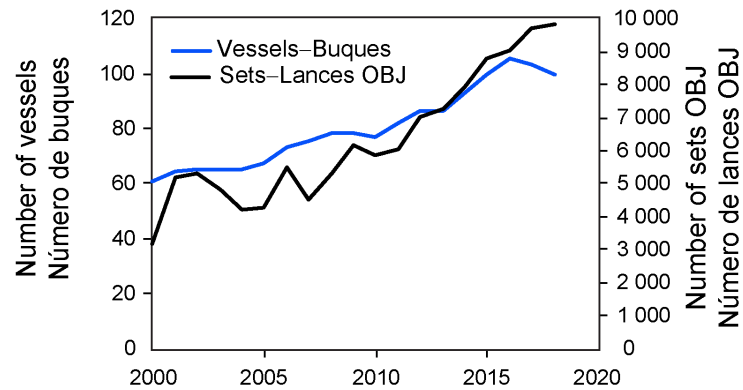


For floating objects:

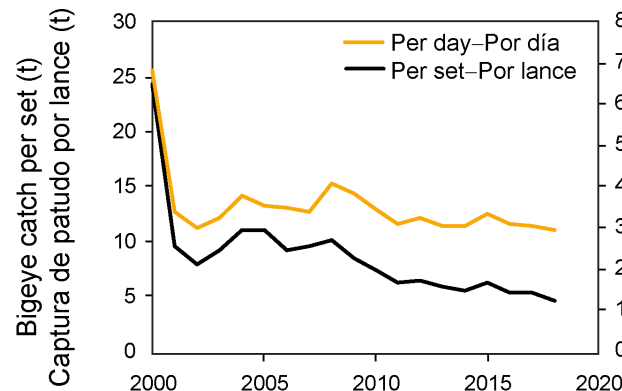
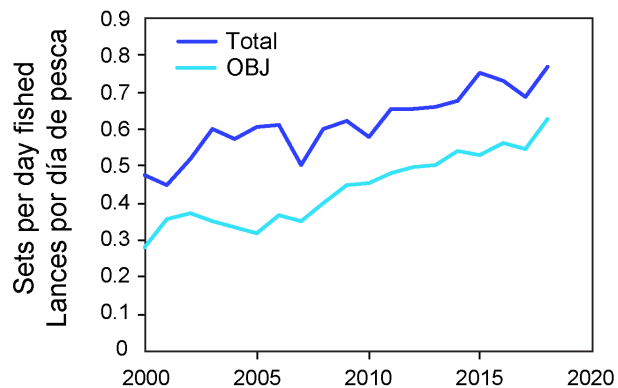
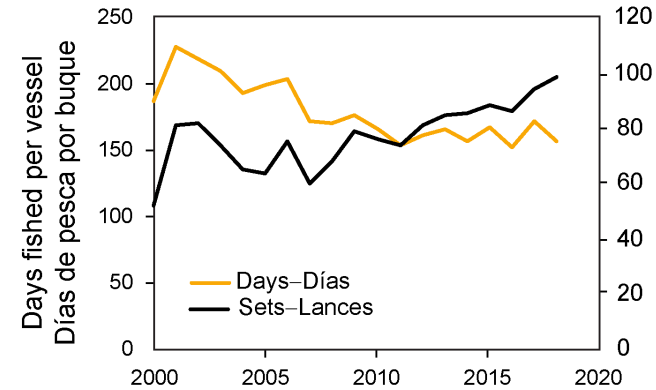
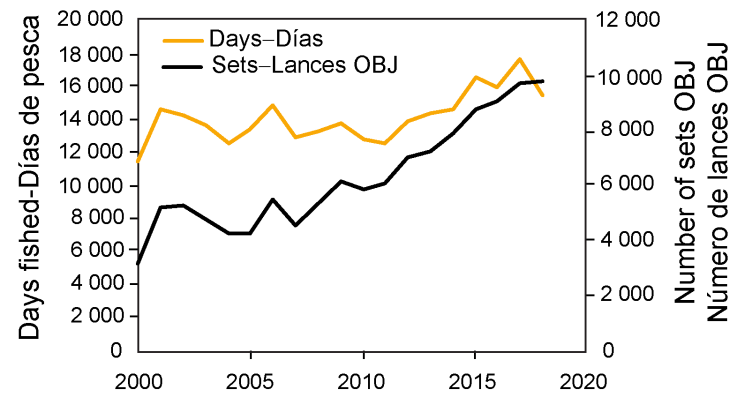
- Days fished for is positively related to the number of sets



Relationship between days fished and the number of sets



Data are from the purse-seine vessels that made more than 50% of their sets on floating objects



Number of sets per vessel
Número de lances por buque

Bigeye catch per day fished (t)
Captura de patudo por día de pesca (t)

Why did the number of sets increase?

