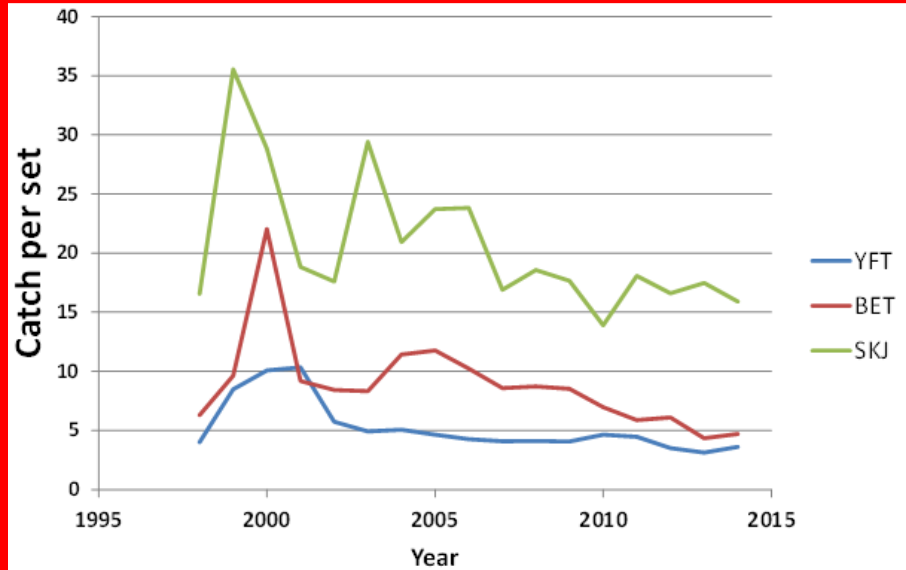
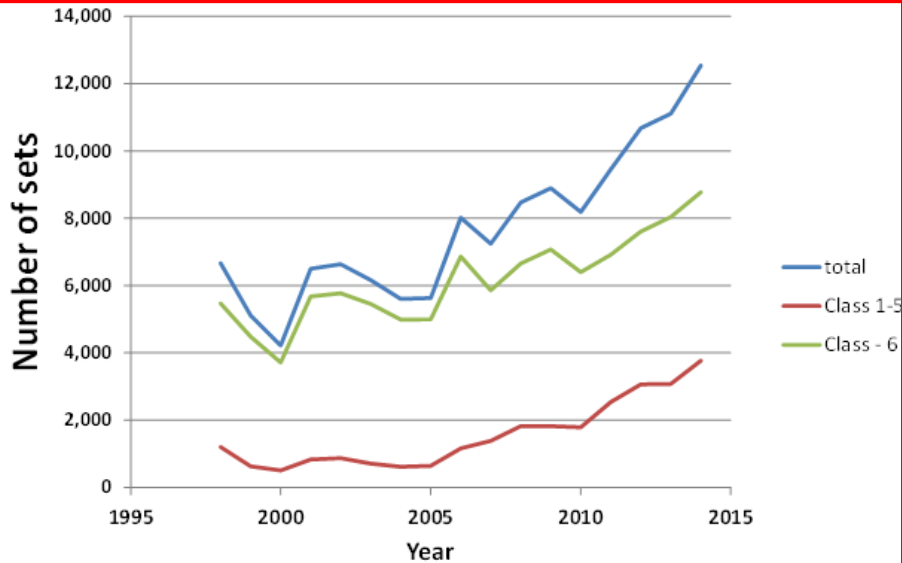




SAC-07-07 f. i
CHANGES IN THE PURSE-SEINE FLEET FISHING ON
FLOATING OBJECTS AND THE NEED TO MONITOR
SMALL VESSELS

7^a Reunión del Comité Científico Asesor
7th Meeting of the Scientific Advisory Committee

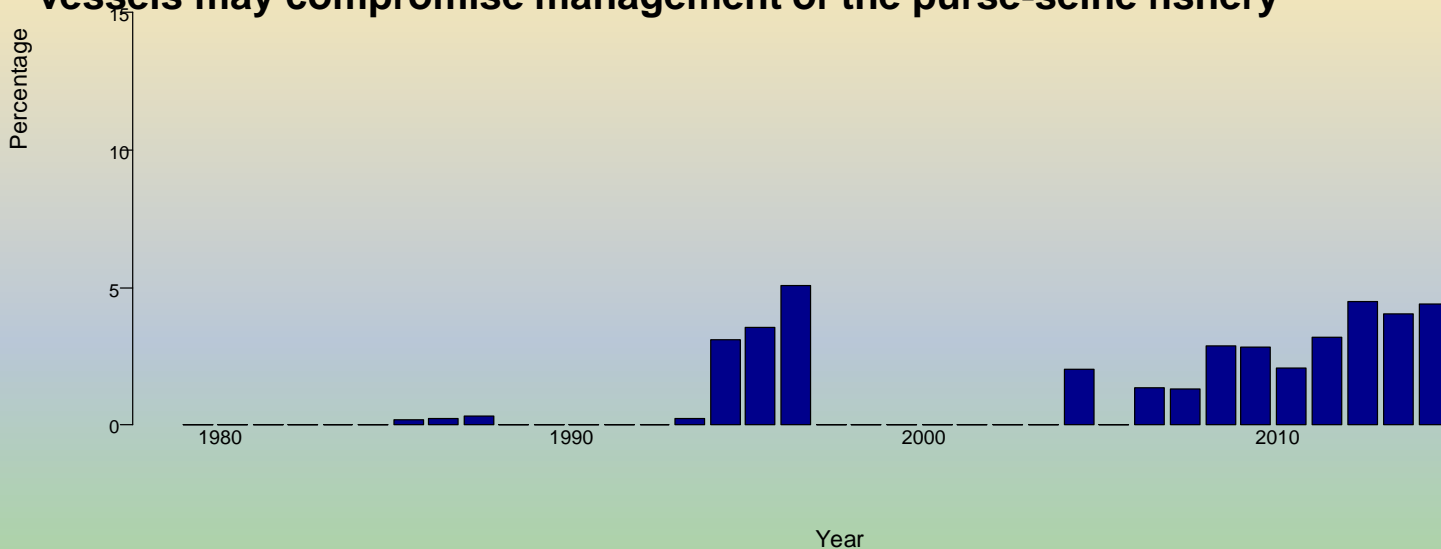
BACKGROUND



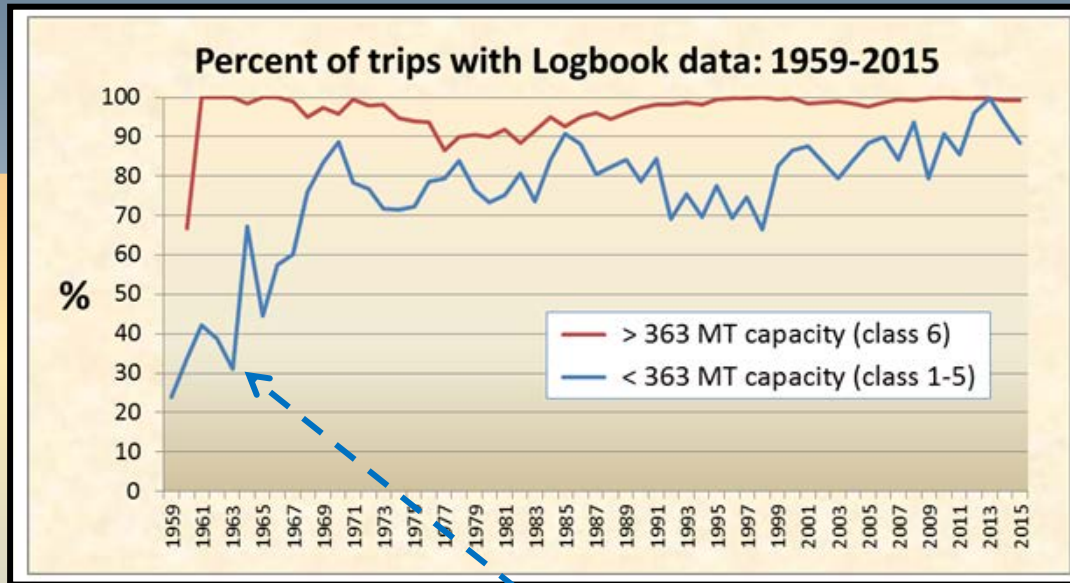
- The number of floating-object sets of both small (class 1-5) and large (class-6) purse-seine vessels has increased since 2005
- A decreasing trend in purse-seine catch-per- floating object set, for YFT, BET & SKJ
- Changes in the dynamics of the fishery on floating objects have prompted the need for a review of the data available for small (class 1-5) purse-seine vessels

BACKGROUND

- Large vessels have nearly 100% Obs. coverage, providing important details about fishing activities and floating-object characteristics
- Small vessels are rarely sampled by observer programs. IATTC and national observer programs have placed observers on some trips by small vessels only under certain circumstances
- A lack of detailed information on the fishing activities on floating objects of small vessels may compromise management of the purse-seine fishery



CATCH AND EFFORT OF SMALL VESSELS



Data sources

- Collected almost exclusively from vessel **logbooks**, and as available, from cannery records. Logbooks info about 85% since 2005

Catch and effort

- Small vessels fish on unassociated schools of tunas and on tunas associated with floating objects

CATCH AND EFFORT OF SMALL AND LARGE VESSELS

Unassociated sets



Number of sets–Número de lances
Vessel class: <=5–Clase de buque: <=5
NOA (Unassociated)–NOA (No asociado)

2 000
1 000
0

Number of sets–Número de lances
Vessel class: 6–Clase de buque: 6
NOA (Unassociated)–NOA (No asociado)

2 000
1 000
0

0°

120° W

0°

120° W

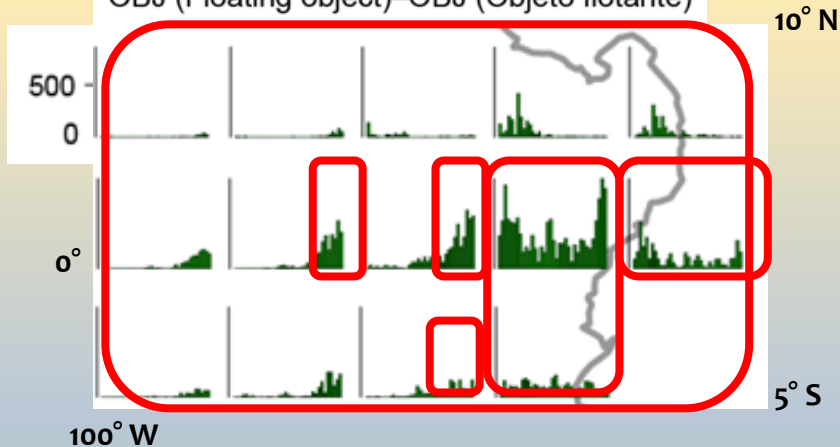
- Effort clustered in two areas
- Small and large vessels NOA fishing areas overlap
- Some areas/years with equal or greater effort made by small vessels

CATCH AND EFFORT OF SMALL AND LARGE VESSELS

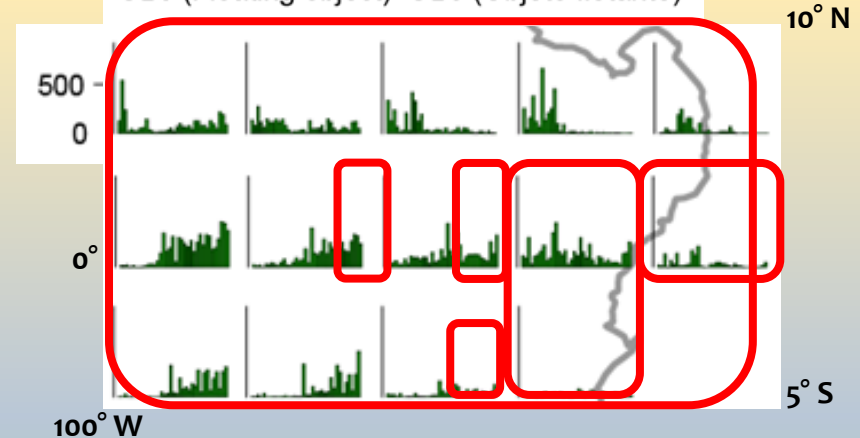
Floating object sets



Number of sets–Número de lances
Vessel class: ≤ 5 –Clase de buque: ≤ 5
OBJ (Floating object)–OBJ (Objeto flotante)



Number of sets–Número de lances
Vessel class: 6–Clase de buque: 6
OBJ (Floating object)–OBJ (Objeto flotante)



- Effort mostly distributed from the coast to 100°W, and from 5°S to 10°N
- Heavy effort overlaps areas with FOB activity made by large vessels
- Some areas/years with equal or greater effort made by small vessels

BYCATCH AND DYNAMICS ON FLOATING OBJECTS

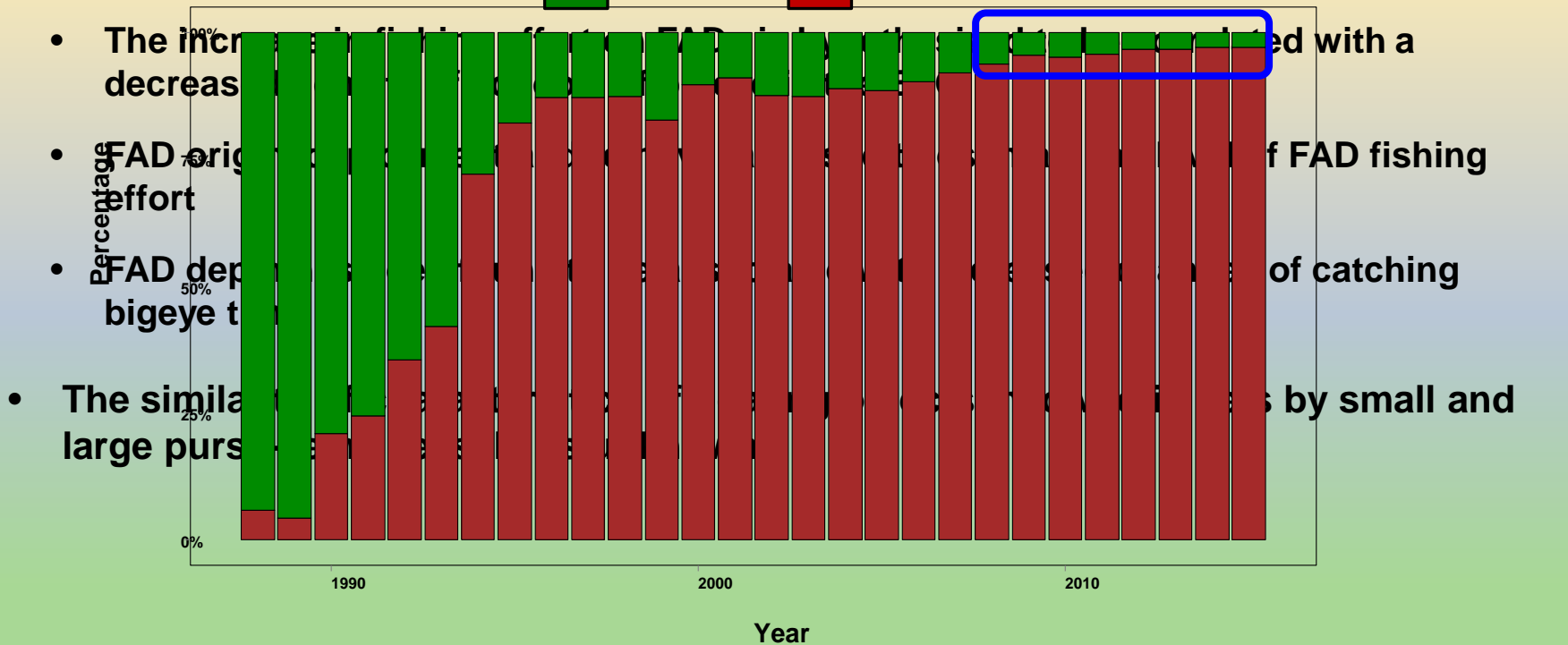
Non-target species

- **Large vessels: Whale sharks and Mobulid rays → Unassociated sets**
- **But the great majority (Sharks, bony fishes, turtles, etc.) → Floating object sets**
- **Bycatches of non-target species may also occur in unassociated and floating-object sets made by small purse-seine vessels**
- **Logbook data**
 - **May not provide full information on species composition of retained catch for non-target species**
 - **Do not provide information on at-sea discards of tuna and non-target species**

BYCATCH AND DYNAMICS ON FLOATING OBJECTS

FAD fishery

- Since 2008 >90% of all floating-object sets made by large vessels are estimated to have been sets on FADs
- FAD information is important for management of the floating-object fishery



WHY THE NEED TO MONITOR SMALL VESSELS?

- **Limited information retrieved from logbook data on non-target species composition (retained and discarded), or on tunas discarded**
- **IATTC and national observer programs have only placed observers on some small vessel trips under certain circumstances**
- **Other than object type, the detailed information collected by observers is not available for small vessel floating object sets recorded on IATTC logbook forms**
- **FOB overlapping areas are characterized by high levels of FAD interactions by large vessels. FAD interactions by small vessels are unknown**
 - **Are the FAD interactions similar? The vessels share the same areas...**
 - **Are the FAD interactions different? Due to differences in operational characteristics between small and large vessels**
 - **Differences in operational characteristics between small and large vessels may lead to different fishing strategies for small vessels (e.g. deployments)**

MONITORING OPTIONS ON SMALL VESSELS

- **Place an observer**
 - Space constrains (especially on vessel class ≤ 4)
- **Port sampling**
 - Does not provide at-sea discard information
- **Electronic Monitoring Systems (EMS)**
 - It can provide bycatch information when data from onboard observers are not available (Restrepo *et al.*, 2014).
 - EMS on large purse-seines with high resolution video have proven efficient for identifying and quantifying bycatch of large-bodied species (Ruiz *et al.*, 2014), as well as their release efforts
 - Although promising for large-sized species, medium or small-sized species, would be problematic to identify (Ruiz *et al.*, 2014).
 - FADs, which are large objects, would not be difficult to monitor by EMS. Also, FAD interactions, such as deployments and removals, could be easily recorded

CIAT IATTC



Questions

