SAC-08-06a
A REVIEW OF FISHERY DATA AVAILABLE FOR SMALL PURSE-SEINE VESSELS

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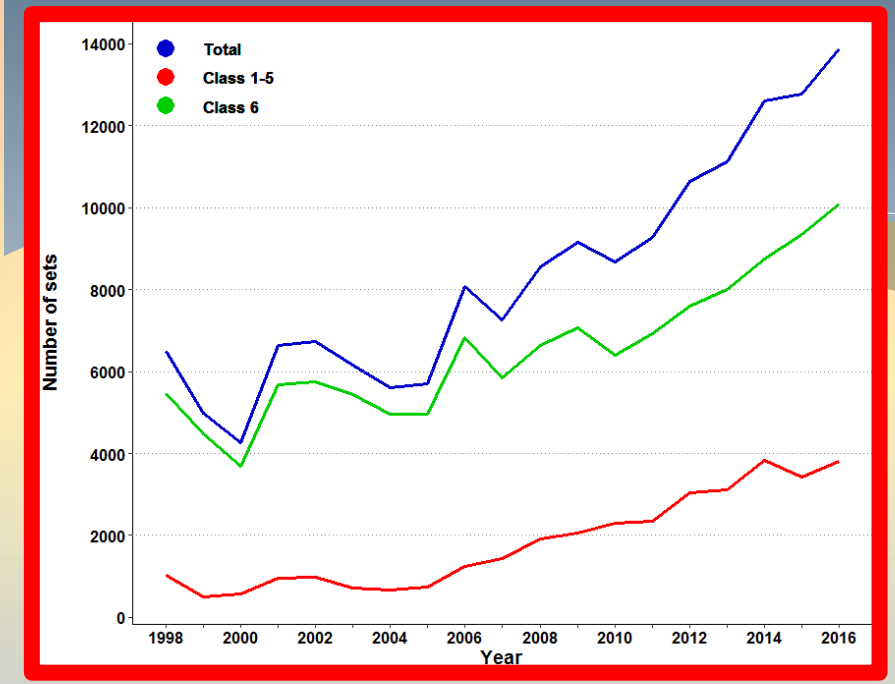
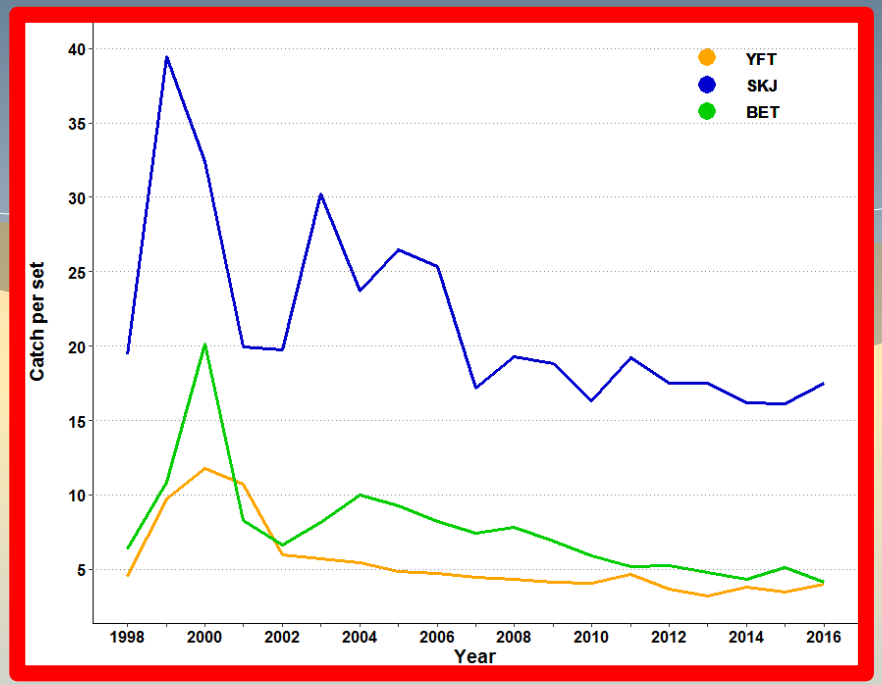
8ª Reunión del Comité Científico Asesor
8th Meeting of the Scientific Advisory Committee

BACKGROUND

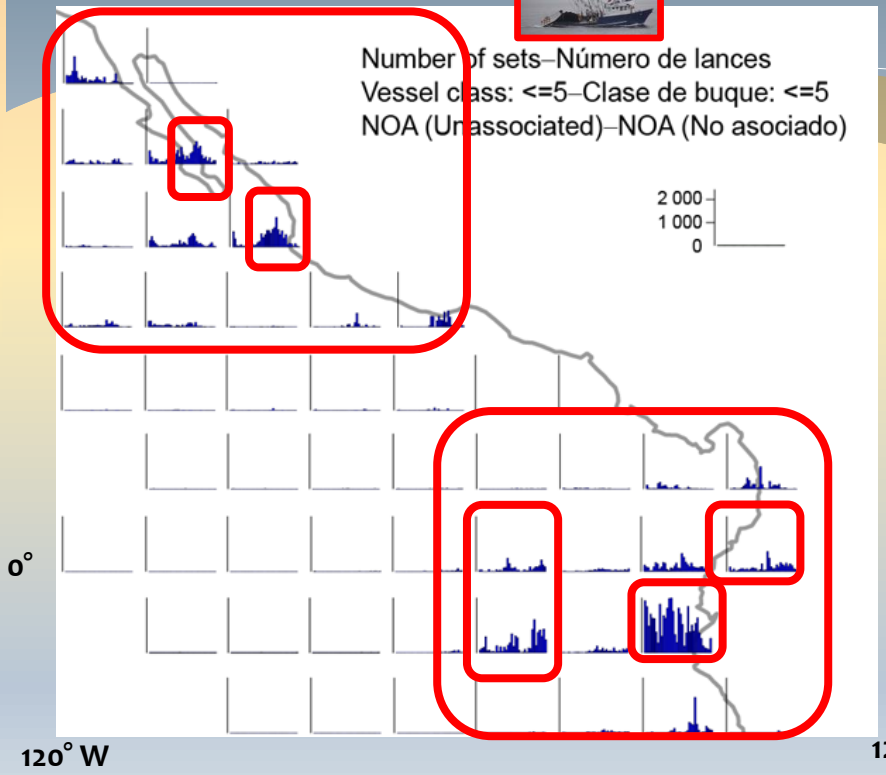


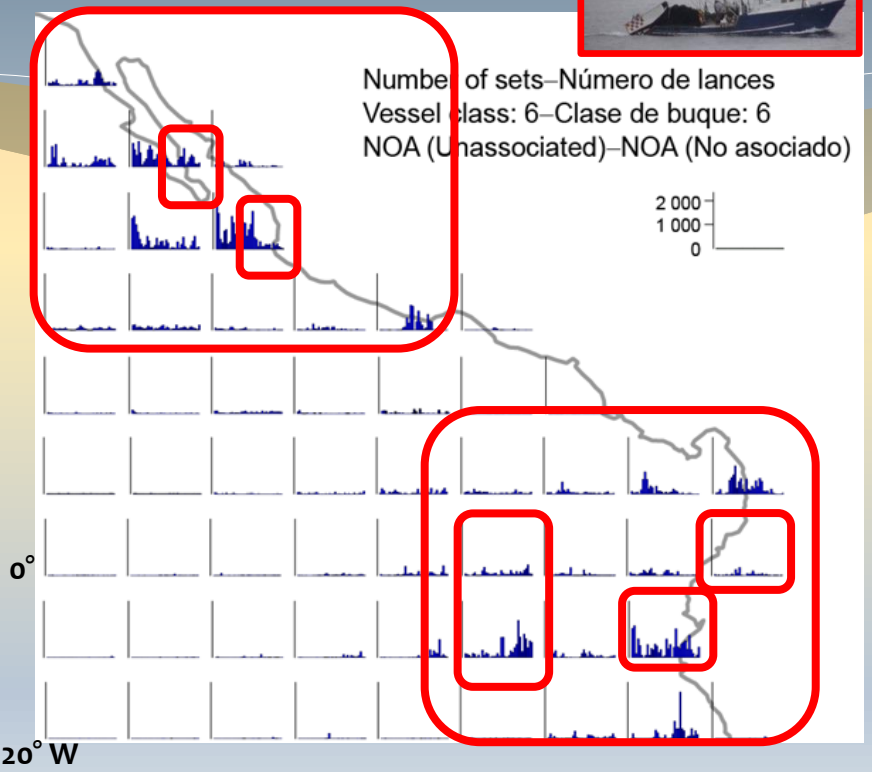


- **The number of floating-object sets of both small (class 1-5) and large (class-6) purse-seine vessels has increased since 2005**
- **A decreasing trend in purse-seine catch-per- floating object set, for YFT, BET & SKJ**
- **Changes in the dynamics of the fishery on floating objects have prompted the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

CATCH AND EFFORT OF SMALL AND LARGE VESSELS

Unassociated sets

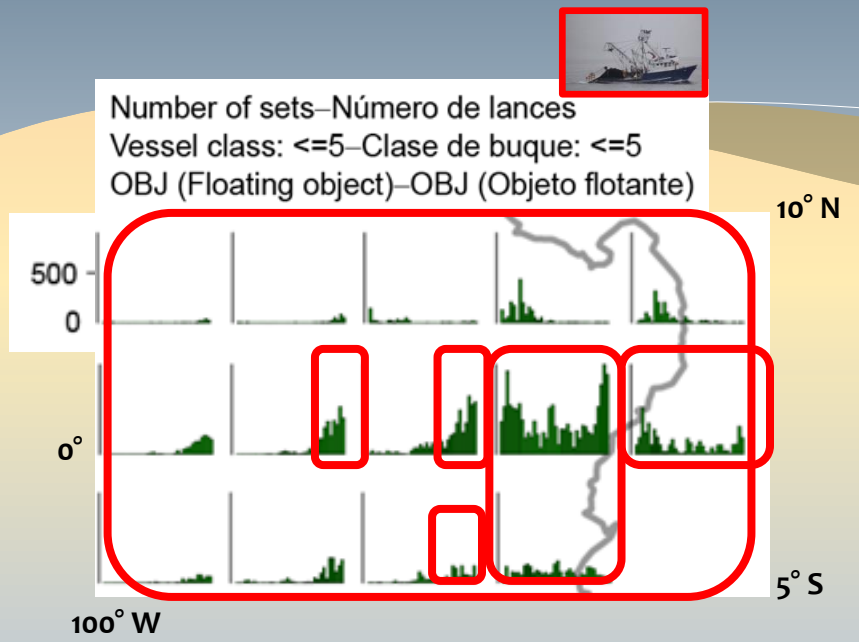


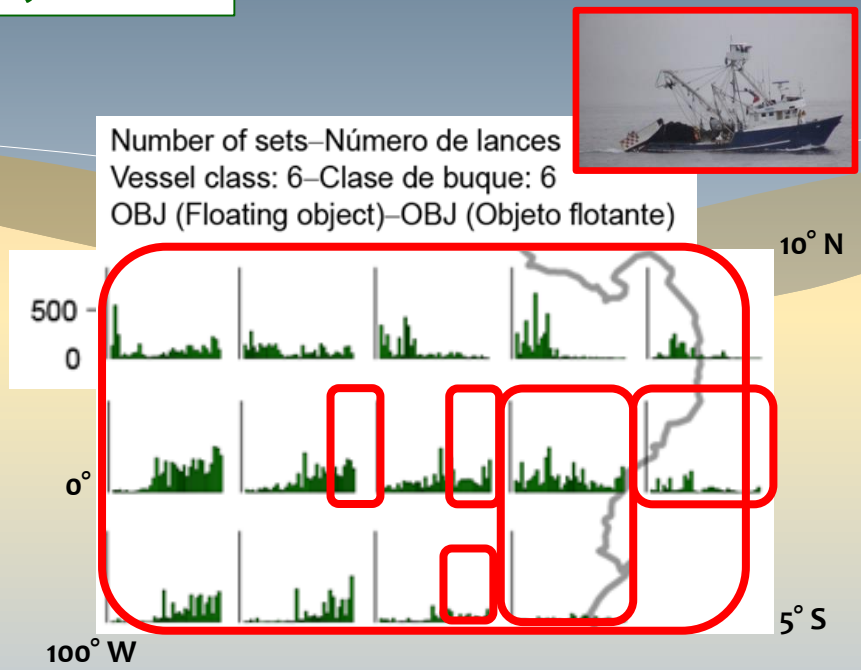


- **Small and large vessels NOA fishing areas overlap**
- **Some areas/years with equal or greater effort made by small vessels**
- **Whale sharks and Mobulid rays are caught in NOA made by large vessels and may also occur in NOA made by small vessels**

CATCH AND EFFORT OF SMALL AND LARGE VESSELS

Floating object sets



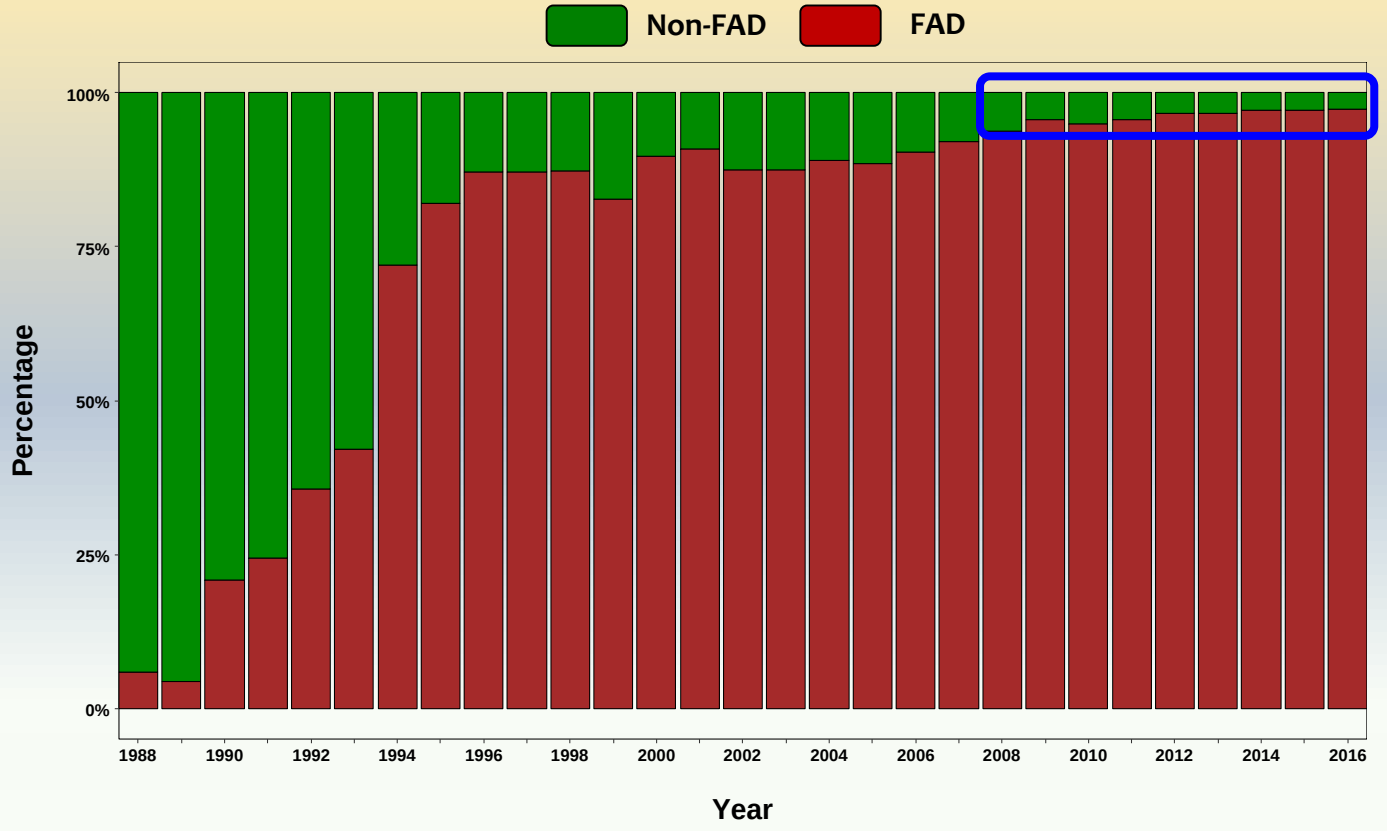


- **OBJ effort of small vessels overlaps areas with FOB activity made by large vessels**
- **Some areas/years with equal or greater effort made by small vessels**
- **The majority of non-target species are caught in OBJ made by large vessels**
- **Catches of non-target species may also occur in OBJ made by small purse-seine vessels**

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 proper management of the floating-object fishery**

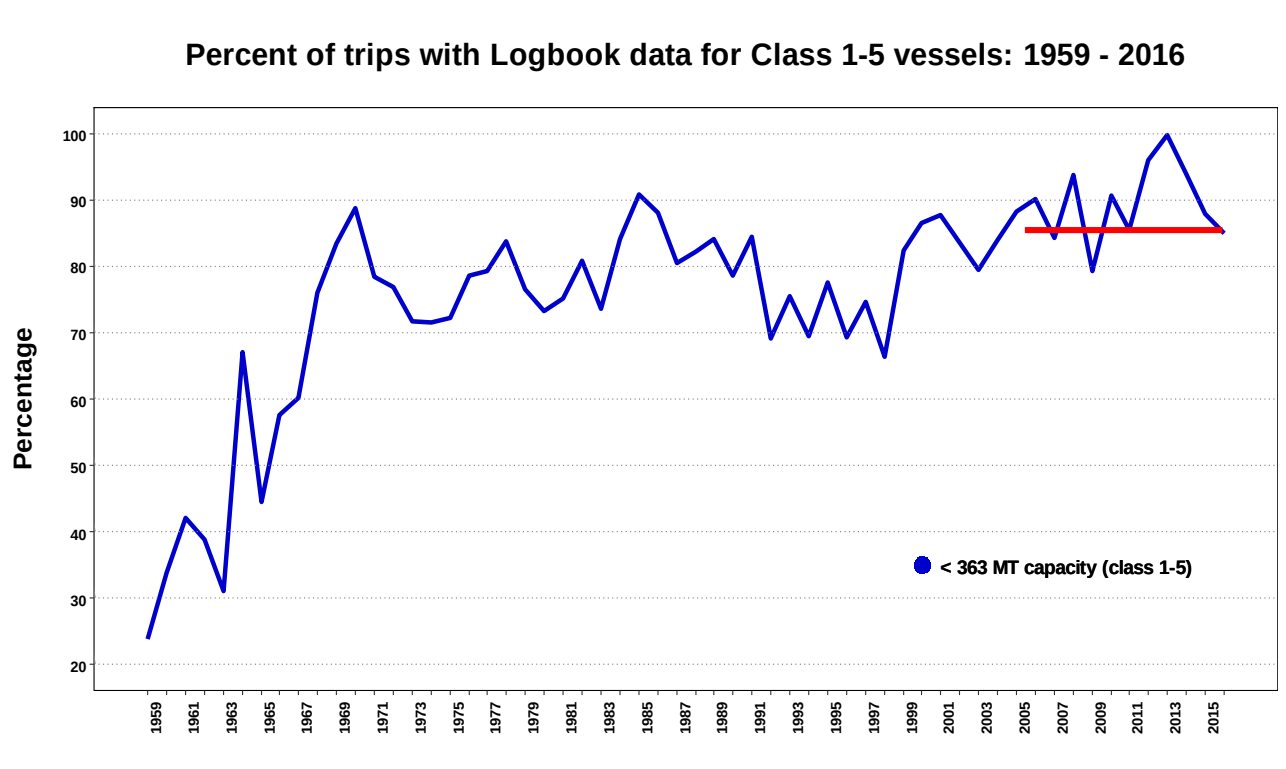


BYCATCH AND DYNAMICS ON FLOATING OBJECTS

FAD fishery

- **FAD information is important for proper management of the floating-object fishery**
  - **The increase in fishing effort on FADs is hypothesized to be correlated with a decreased density of schools of bigeye in the EPO**
  - **FAD depth has been found to be associated with increased chances of catching bigeye tuna**
- **The similarity of characteristics of floating objects involved in sets by small and large purse-seine vessels is 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, soak time)**

DATA SOURCE FOR SMALL VESSELS



- **Logbooks and cannery records (when available) continue to be the principal source of data.**
- **Logbooks info about 85% since 2005**

INFORMATION ON SMALL VESSELS FROM SOURCES OTHER THAN OBSERVER 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**
- **Other than object type, the detailed information collected by observers is not available for small vessel floating object sets recorded on IATTC logbook forms**

INFORMATION ON SMALL VESSELS FROM SOURCES OTHER THAN OBSERVER DATA

INTER-AMERICAN TROPICAL TUNA COMMISSION

91ST EXTRAORDINARY MEETING

La Jolla, California (USA)
7-10 February 2017

RESOLUTION C-17-01

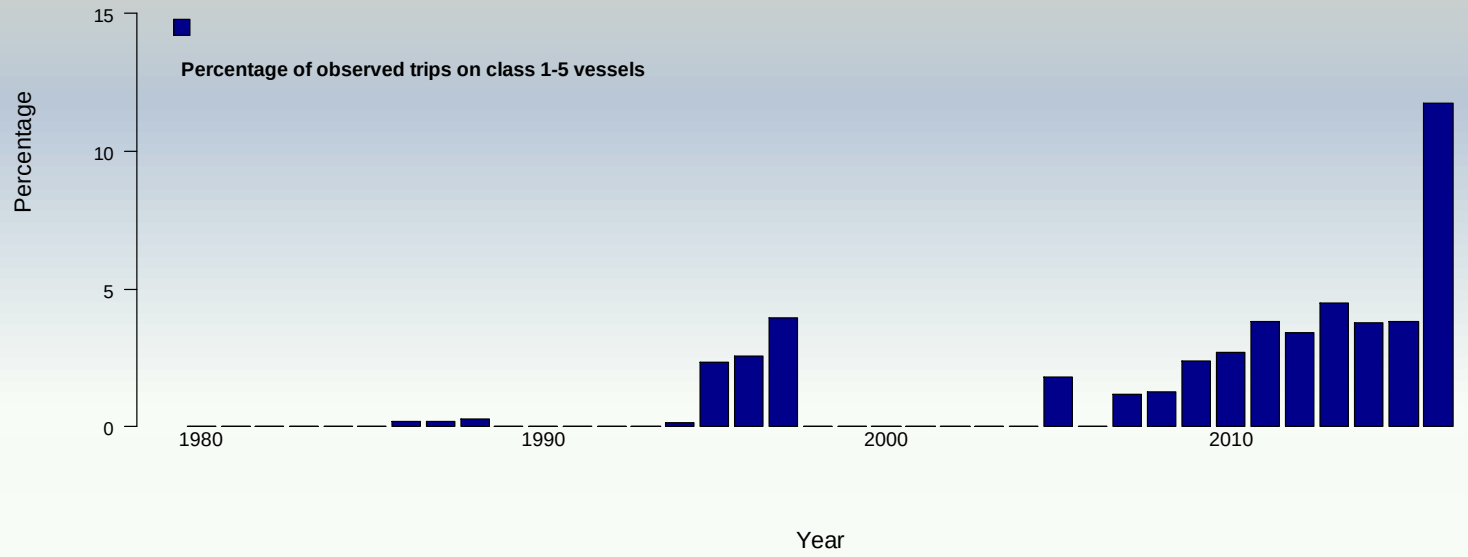
CONSERVATION OF TUNA IN THE EASTERN PACIFIC OCEAN DURING 2017

The Director shall notify CPCs when the catch of yellowfin and bigeye by capacity class 4, 5, and 6 purse-seine vessels reaches 80% of the total catch limit in sets on floating objects or dolphins, respectively. At 90% of the total catch limit, the Director shall notify CPCs of an estimated closure date for the respective fishery, and at 100% the Director will announce the closure of the respective fishery.

- **These deficiencies could be problematic for near real-time monitoring of tuna catch relative to species-specific quotas**

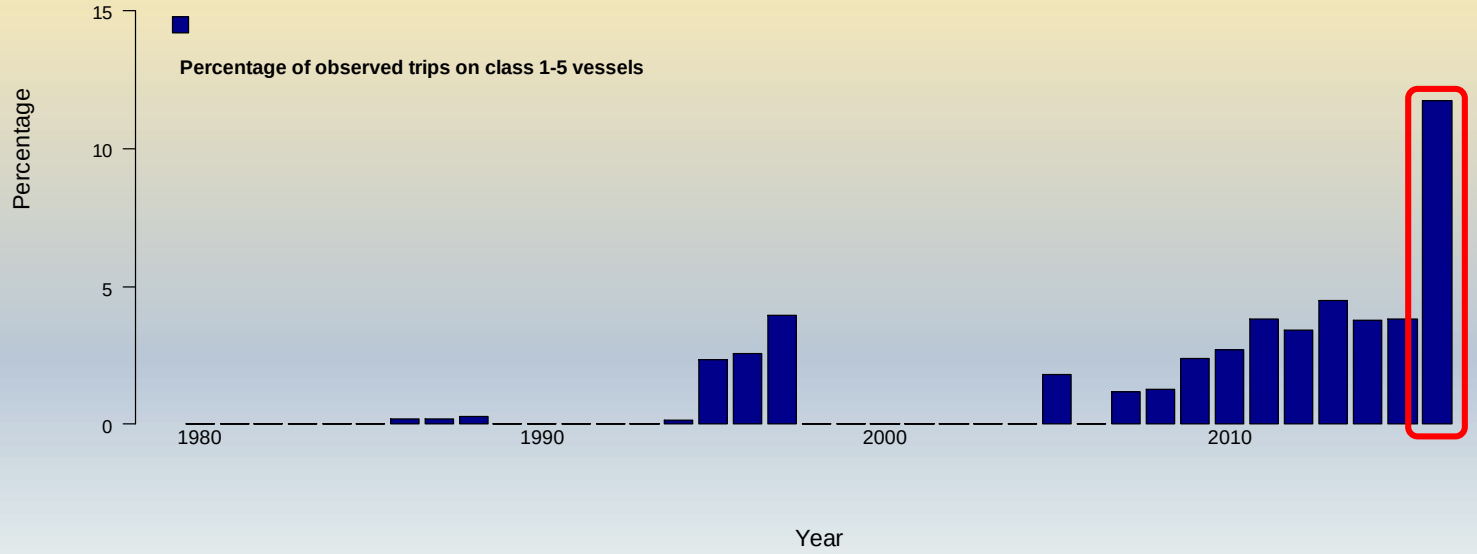
PICD OBSERVER PROGRAMS

- **Large vessels have nearly 100% Obs. coverage, providing important details about fishing activities and floating-object characteristics**
- **A lack of detailed information on the fishing activities on floating objects of small vessels may compromise management of the purse-seine fishery**
- **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**
- **In 2016 the sampling observer coverage increased to almost 12%**



SMALL VESSELS SAMPLED BY OBSERVER PROGRAMS IN 2016

- **Observers from 3 different PICD programs participated in the sampling**
- **57.8% were Class-4 vessels that carried an observer due to the fishing closure. 42.2% were vessels that voluntarily carried an observer per initiative of the ISSF**



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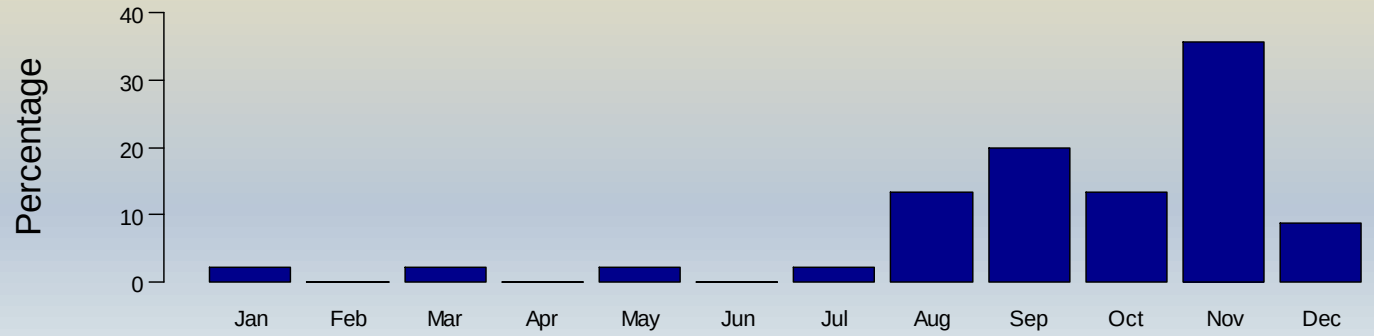
- **57.8% were Class-4 vessels that carried an observer due to the fishing closure. 42.2% were vessels that voluntarily carried an observer per initiative of the ISSF**
- **The majority departed during the last five months of the year.**

Percentage of observed trips made by class 1-5 vessels that departed during 2016



MONITORING OPTIONS ON SMALL VESSELS

- **Place an observer**
  - **Space constrains (e.g. class <=4)**
  - **Costs**
  - **Appropriate sampling design?**
- **Port sampling**
  - **Does not provide at-sea discard information**
- **Electronic Monitoring (EM)**
  - **It can provide bycatch information when data from onboard observers are not available (Restrepo *et al*. 2014)**
  - **EM on large purse-seines with high resolution video have proven efficient for estimating bycatch of large-bodied species (Ruiz *et al*. 2014; Krug *et al*. 2016), and release efforts recordings**
  - **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 EM. Also, FAD interactions, such as deployments and removals, could be easily recorded**
- **EM – logbook combination**
  - **Estimations on tuna discards: Total catch (EM) – retained catch (logbooks)**

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Questions