Evaluation of the declining catch per set in the purse-seine fishery on floating OBJECTS IN the eastern pacific ocean
Issue

• There is concern over the increasing effort in the FADs fishery and its correlation with reduced catch per set for all three major tropical tuna species (bigeye, yellowfin, and skipjack), particularly bigeye.
Hypotheses

• H1: Declining abundance
• H2: Declining number of tuna per FAD as the number of FADs increases, because the tuna disperse themselves among FADs
• H3: Change of targeting practices (e.g. a shift to skipjack, avoiding bigeye)
Number of sets

Number of sets–Número de lances

- ≤363
- >363

Year:
- 1998
- 2000
- 2002
- 2004
- 2006
- 2008
- 2010
- 2012
- 2014
- 2016

Number of sets:
- ≤363 (blue line)
- >363 (red line)
Bigeye assessment

![Graph showing relative biomass over time for BET, Biomass-Biomasa, CPDF-CPDP, and CPS-CPL categories.](image-url)
Skipjack indicators

![Graph showing Skipjack indicators with multiple line plots representing different variables over the years from 2000 to 2015. The y-axis represents relative biomass, and the x-axis represents years from 2000 to 2015. Legend includes lines for Biomass–Biomasa, OBJ - CPDF–CPDP, NOA - CPDF–CPDP, and OBJ - CPS–CPL.]
Spatial distribution of effort
Purse seine net depth
Sets per day fished

Sets per day fished (Lances por día de pesca)

Chart showing a downward trend from 1985 to 2020.
Time of day of set

![Graph showing time of day of set over time with different data sources.](image-url)
Conclusions

• There does not appear to be any evidence supporting any one of the three hypotheses over the others.
• Reduction in catch per set is unlikely to be due to changes in the spatial distribution of the fleet, increased FAD webbing depth, or increased purse-seine net depth.
• The stock assessment does not estimate an impact of the increased number of FAD sets on the bigeye population.
• Monitoring of the increased number of FAD sets and the reduction in catch per set should continue because there is uncertainty in the stock assessment estimates.
• The most important piece of data is a measure of the number of FADs that are deployed in a particular area at a given time. This will probably require an identification system for FADs so that they can be accounted for.