The use of echo-sounder buoys in EPO fleets fishing with FADs

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SAC-07 INF- C (c)

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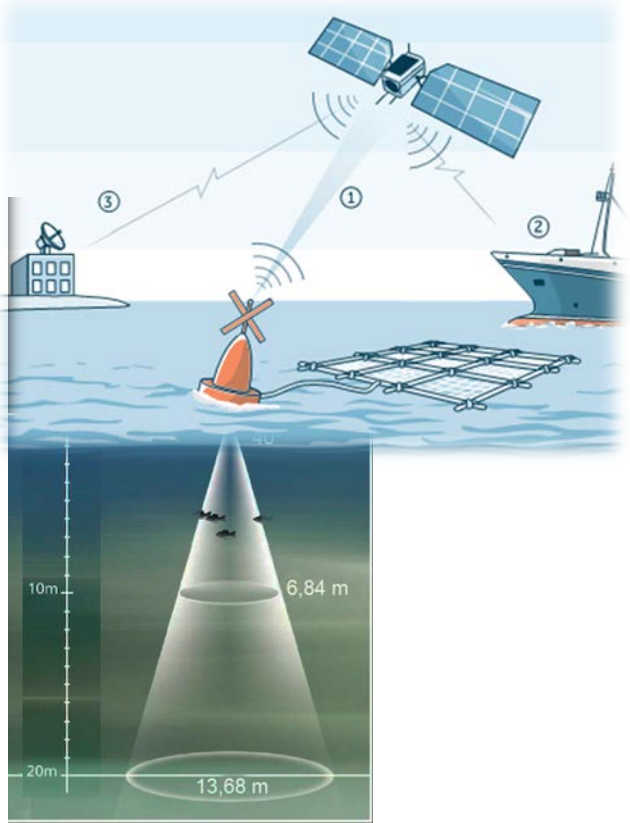
Drifting FAD fishery evolution

Mid 80´s

Nowadays



Workshops with fishers since 2010

Fishers

+

ISSF by-cacth committee

Trials at sea

RFMOs, GOVERNMENTS, PUBLIC

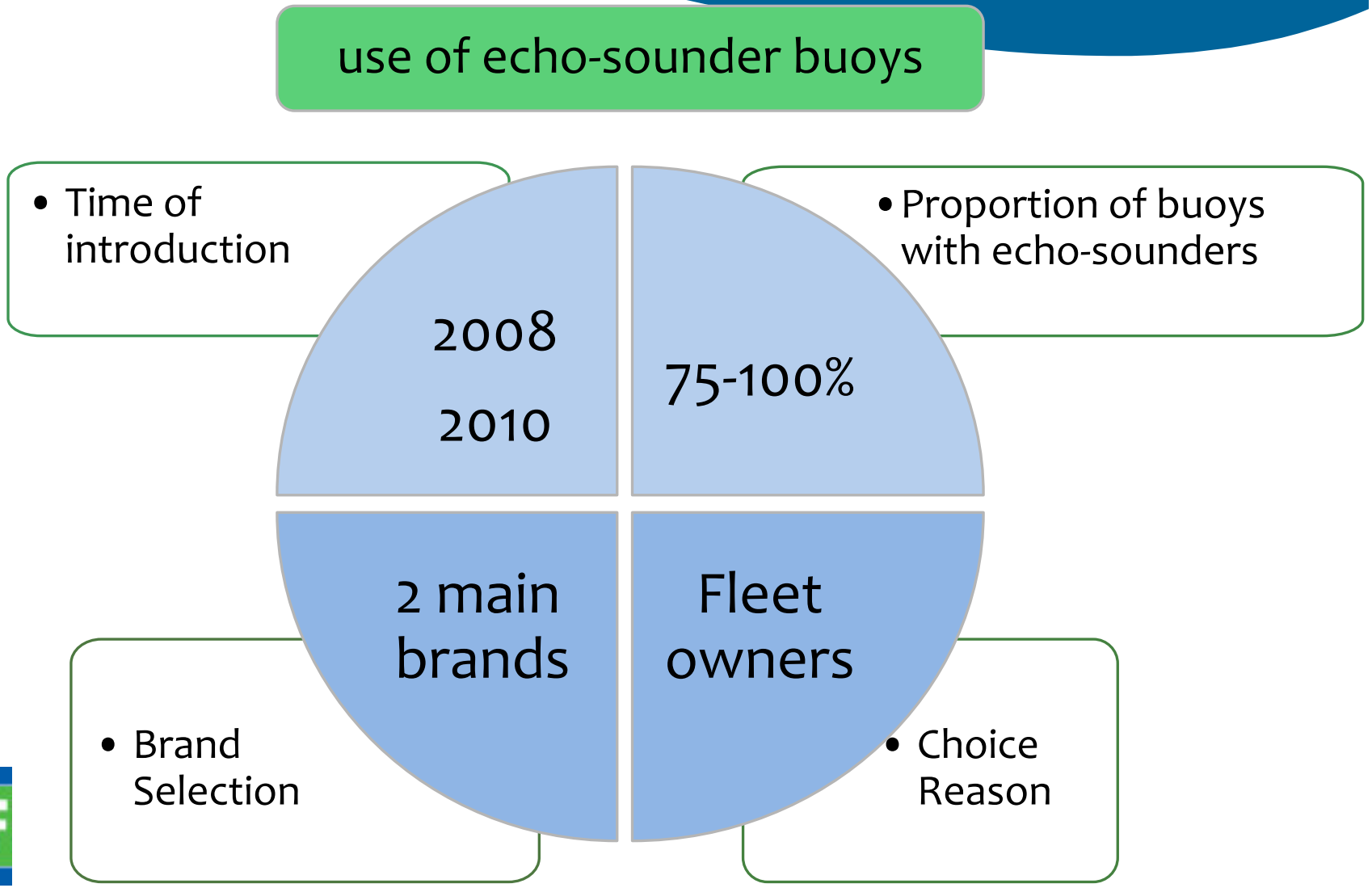
2015

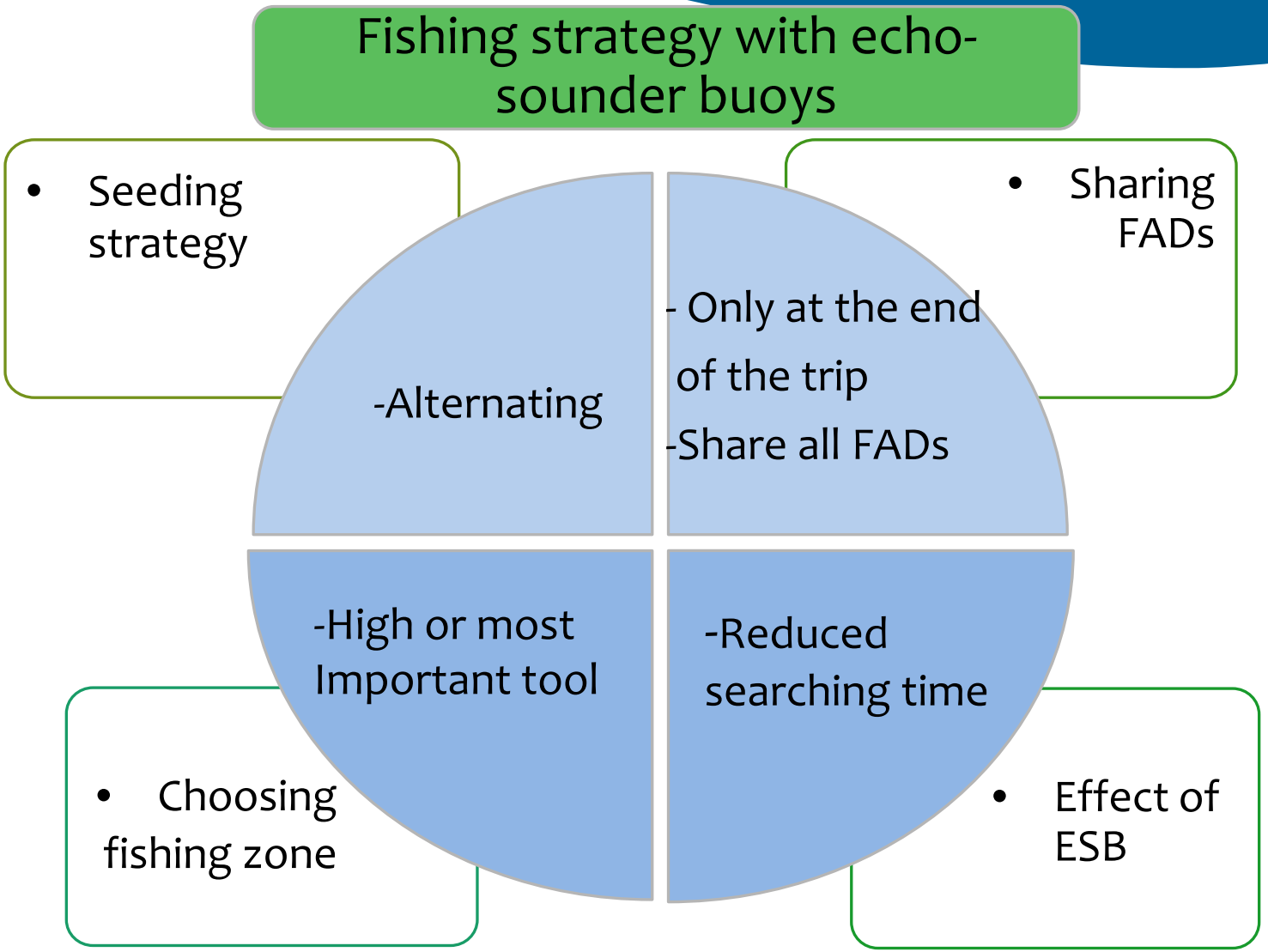
61 Questionnaires

Use of Echo-sounder Buoys (ESB)

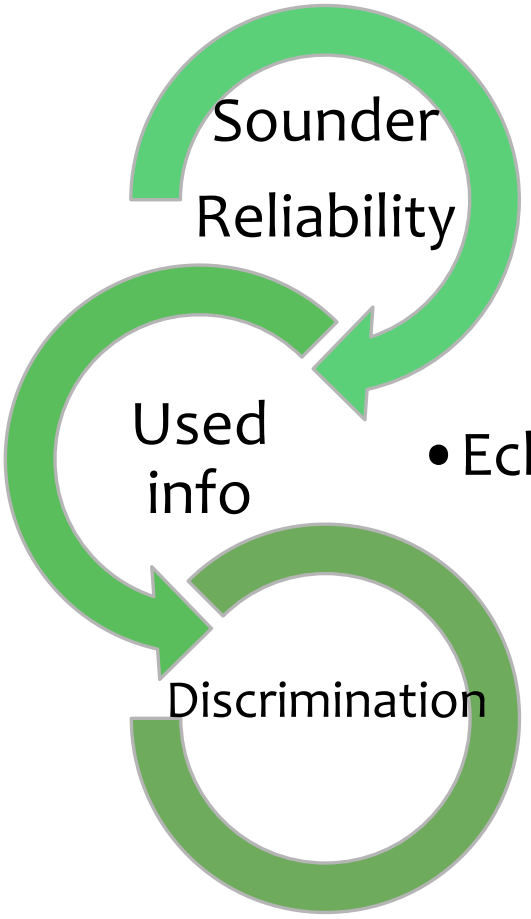
Fishing strategy with echo-sounder buoys

Echo-sounder buoy state of technology


use of echo-sounder buoys
• Time of introduction
2008
2010
• Proportion of buoys with echo-sounders
75-100%
2 main brands
Fleet owners
• Brand Selection
• Choice Reason


Fishing strategy with echo-sounder buoys
• Seeding strategy
-Alternating
- Only at the end of the trip
-Share all FADs
• Sharing FADs
-High or most Important tool
-Reduced searching time
• Choosing fishing zone
• Effect of ESB

Echo-sounder buoy state of technology



- Brand specific
- Rated From 5 to 6.8 (0-10 scale)

- Echo-sounder image

- Not achieved yet

USE of ESB

- Increased percentage of FADs with ESB
- Important to account for brand

Fishing efficiency

- Reduced searching time
- More movements between areas

Provided information

- Not comparable among brands
- Room for improvement in estimates and discrimination

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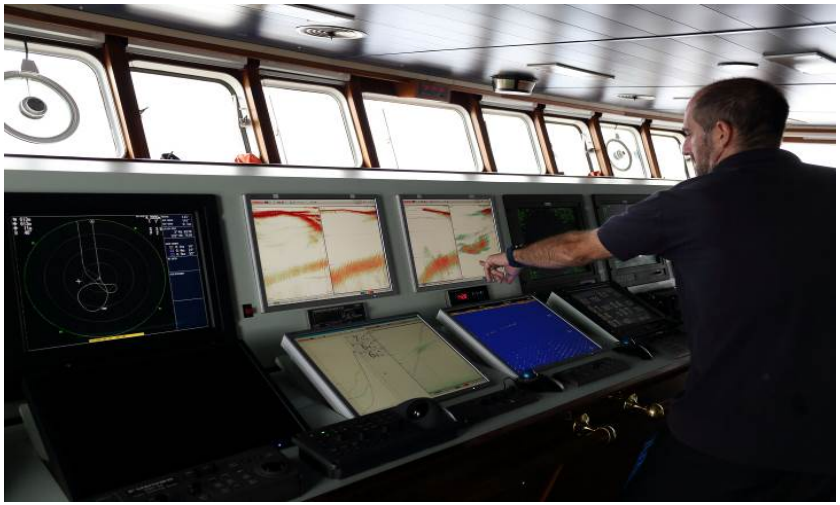
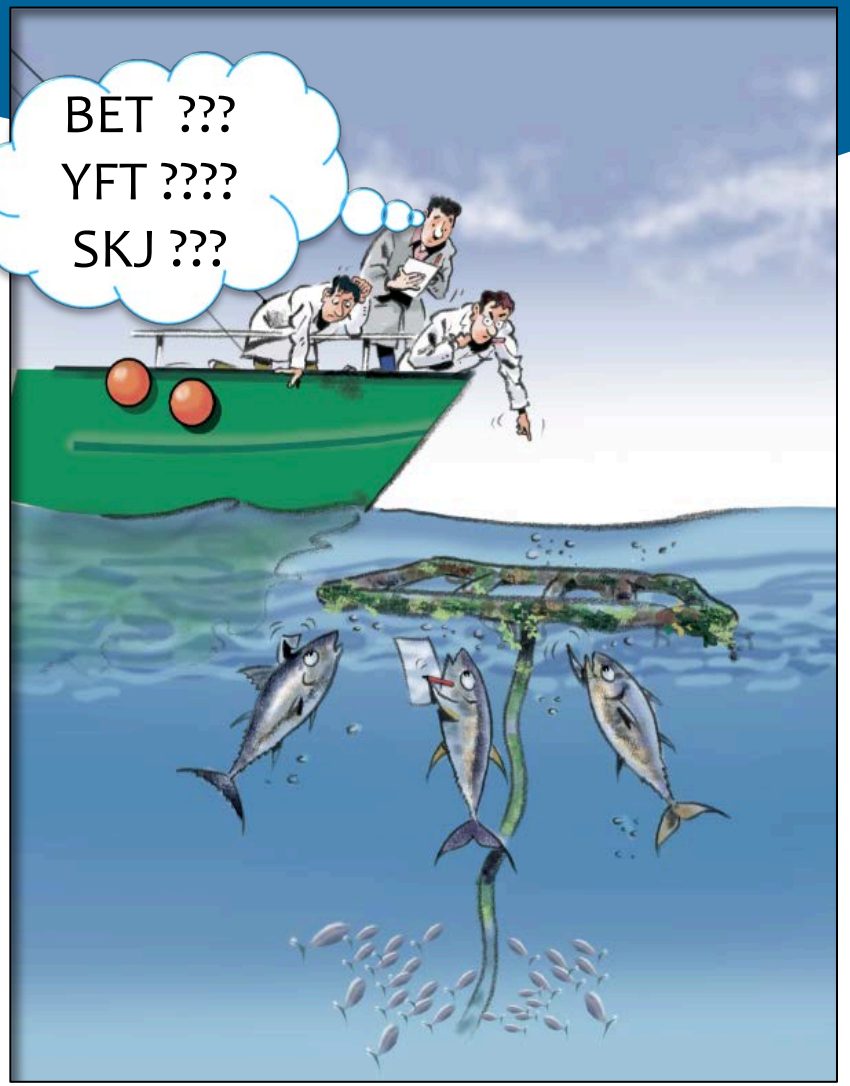
Towards acoustic discrimination of tunas at FADs

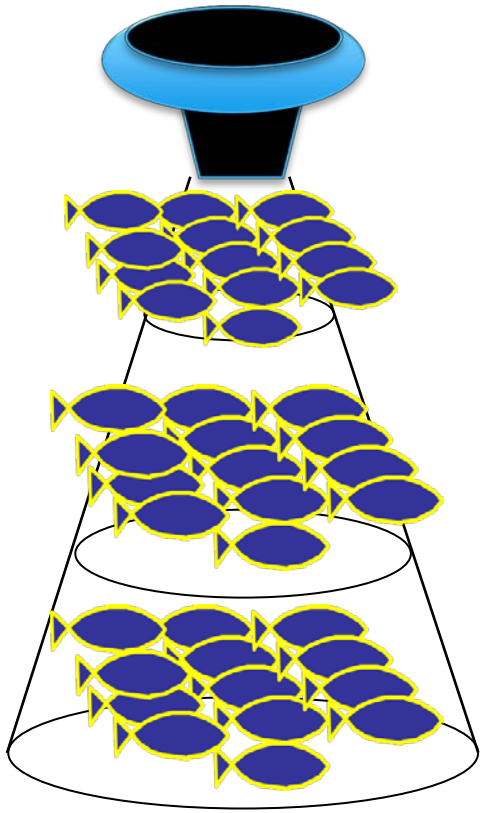
Moreno G., Boyra G., Sancristobal I., Muir J., Murua J., Restrepo, V

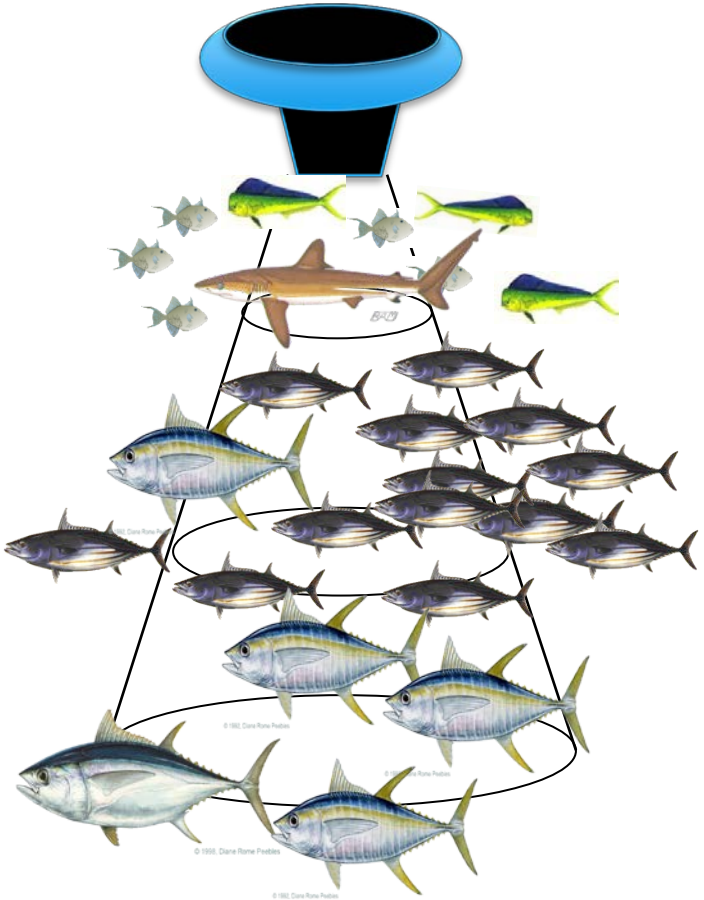


Fisher using acoustic equipment



- Improve technology





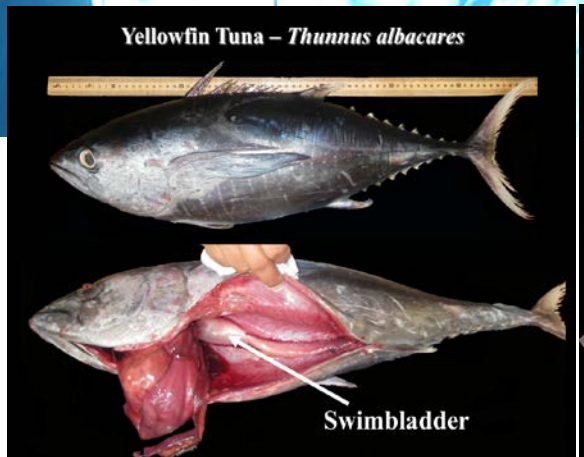
Rough biomass estimates

Biologically relevant measures

Frequency response

Skipjack
Non- swimmbladdered

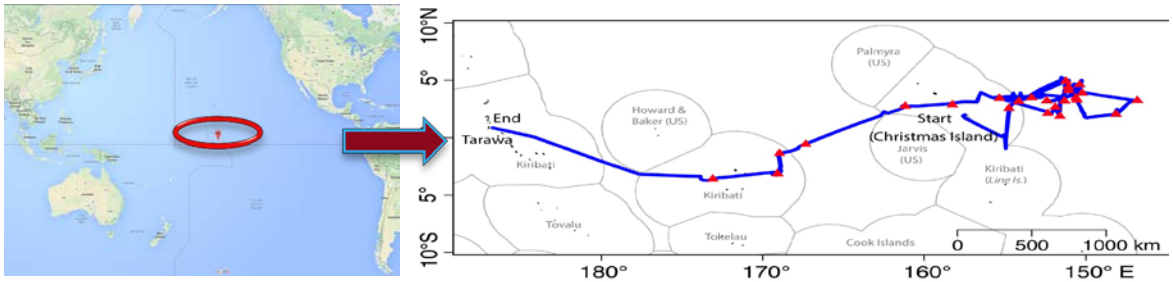
Yellowfin & Bigeye
Swimmbladdered fish



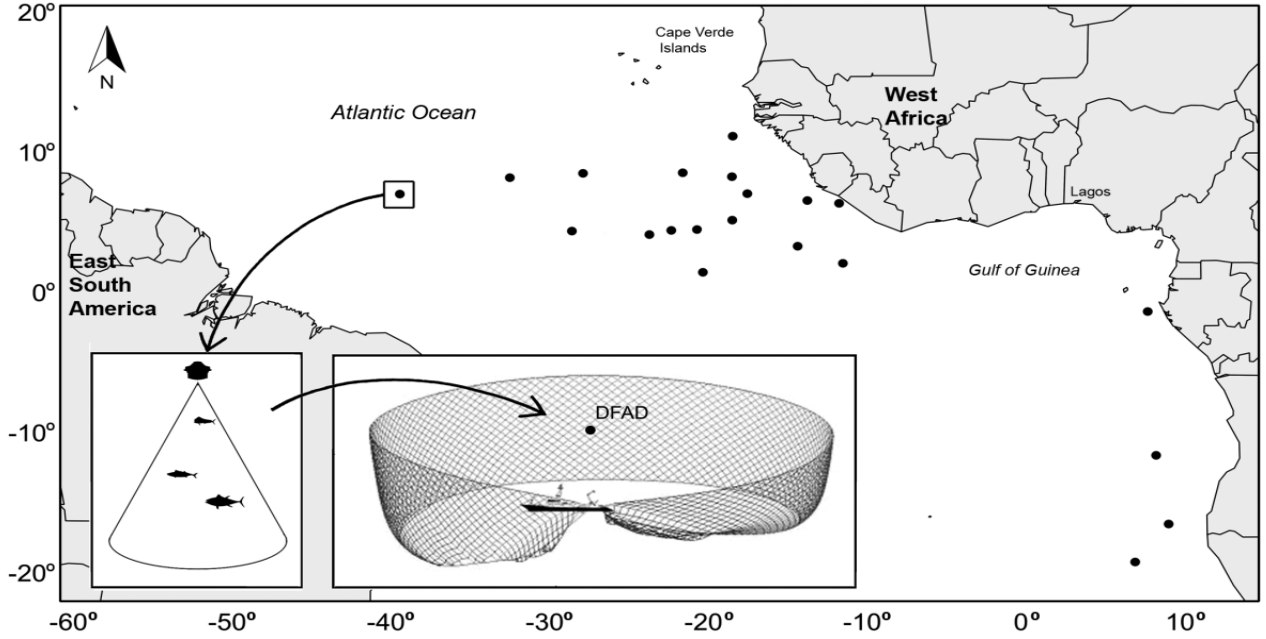
2 Research cruises on-board purse seiners to study:

- Frequency response
- *In situ* Target strength

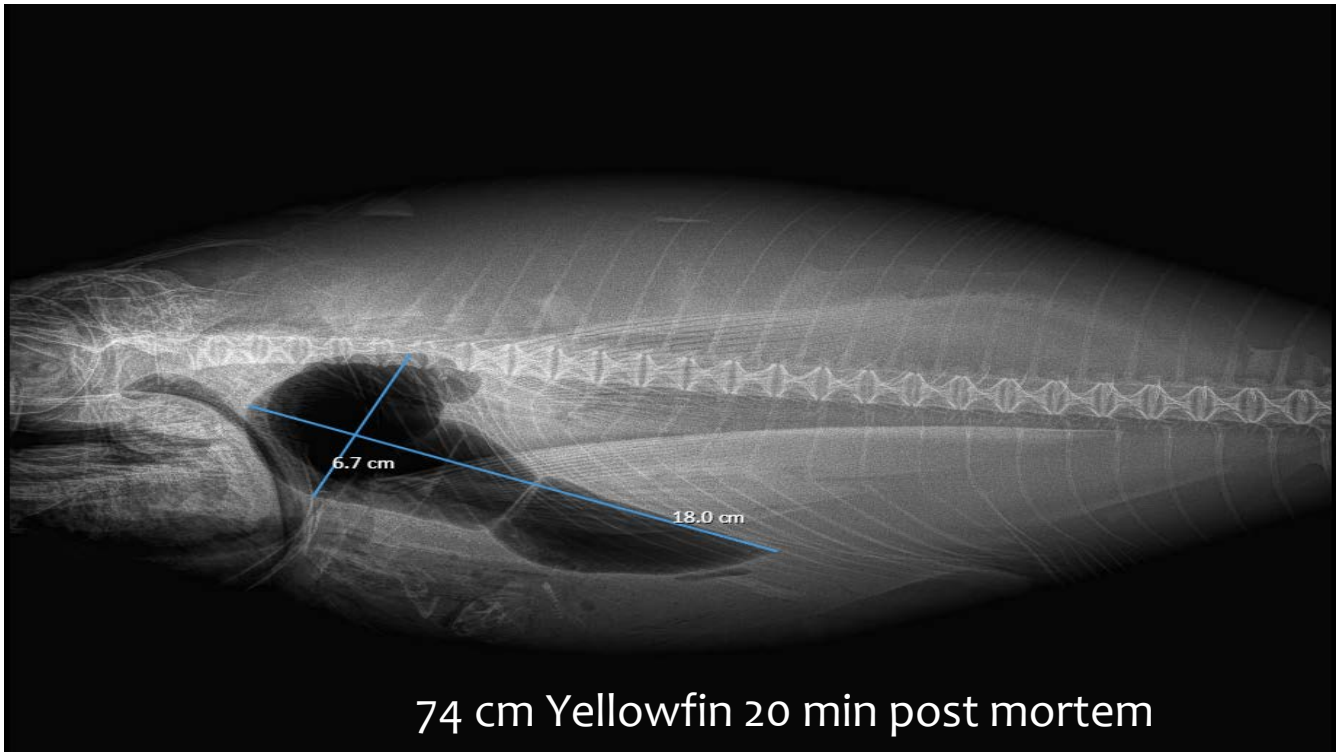
Central Pacific Ocean



Atlantic Ocean

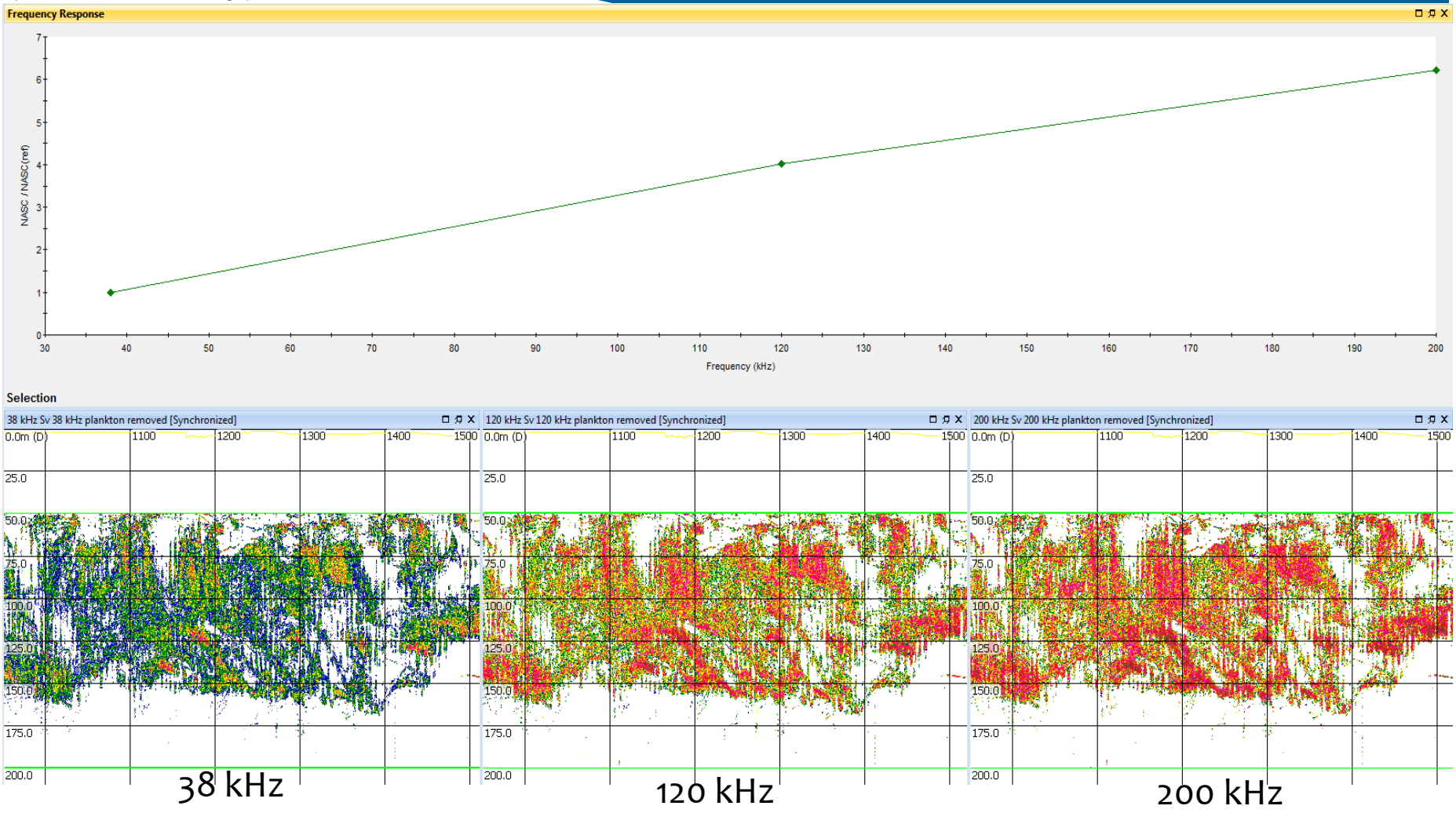


Target Strength measurements based on theoretical models



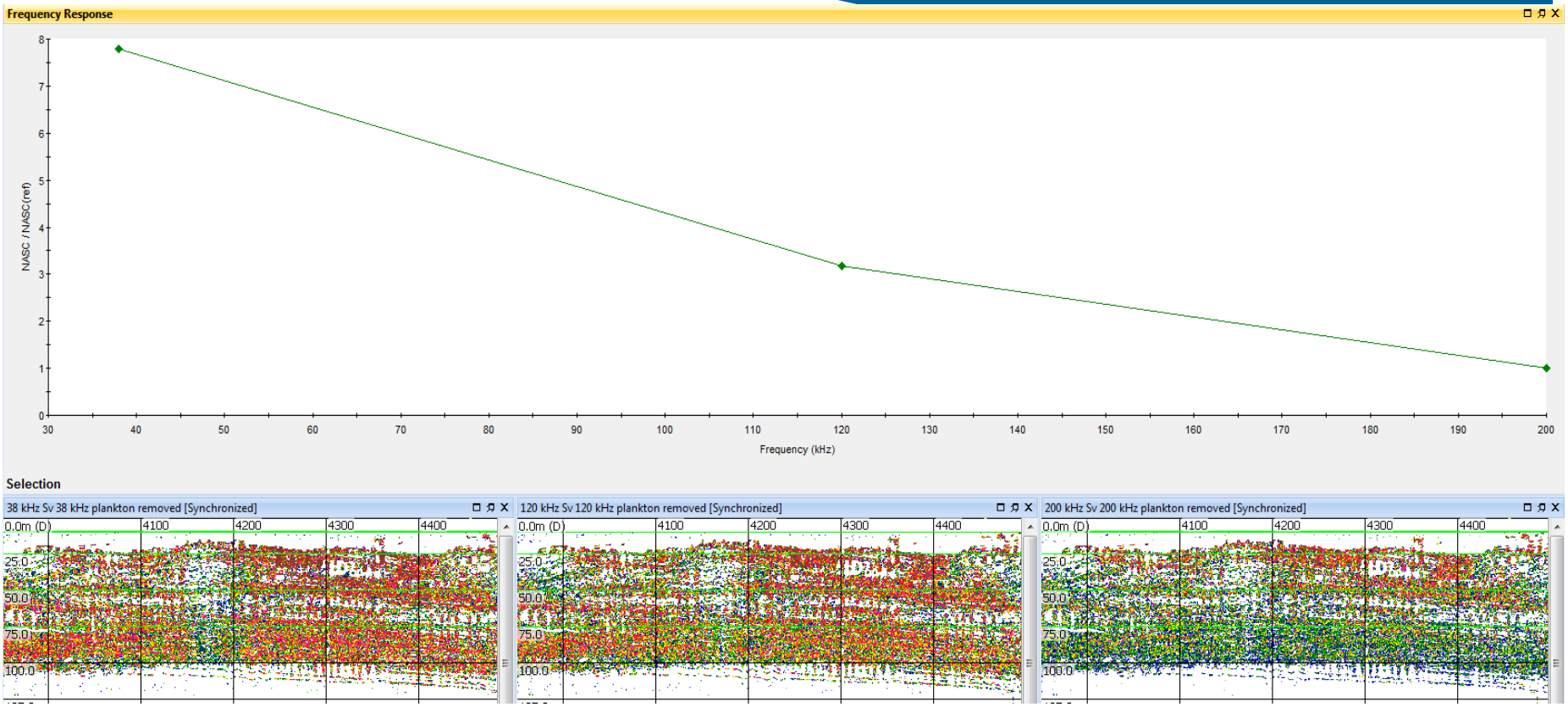
74 cm Yellowfin 20 min post mortem

Skipjack



Skipjack tuna frequency response

Big-eye



38 kHz 120 kHz 200 kHz

Big-eye tuna frequency response

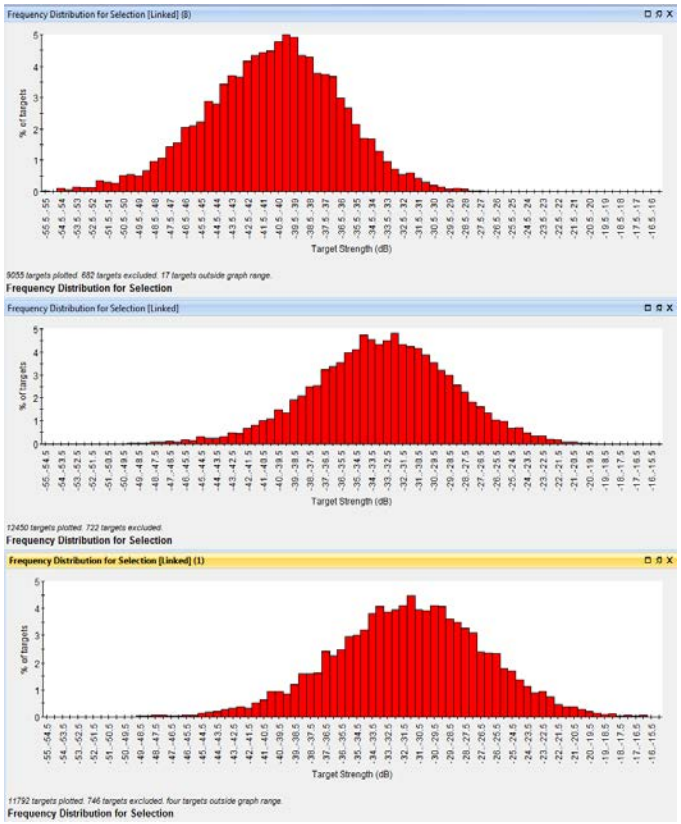
SKJ

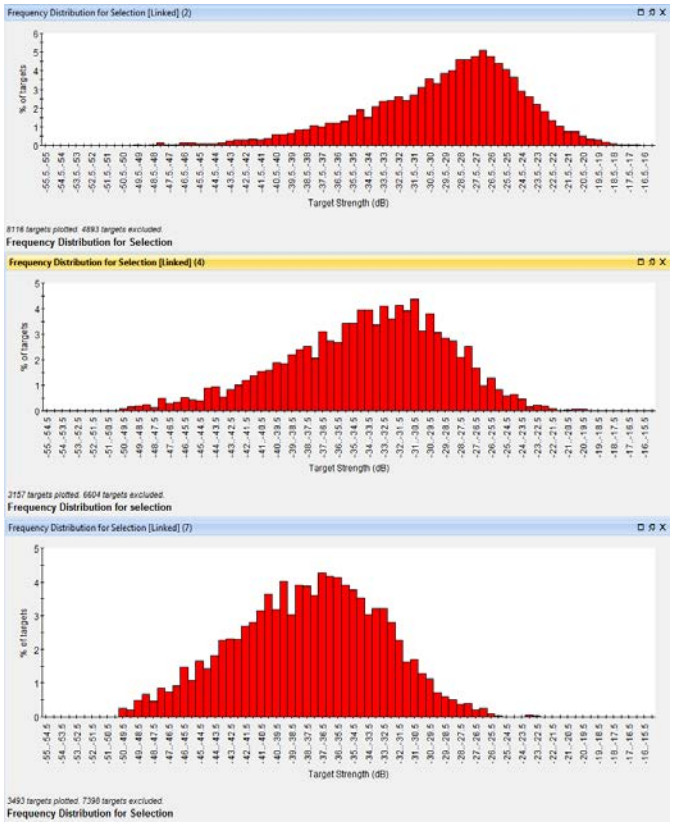
BET

38 kHz

120 kHz

200 kHz





38 kHz

120 kHz

200 kHz

Target Strength - lenght distribution for BET and SKJ

Upcoming research: Target Strenght of YFT of 40-60 cm

Research in Achotines laboratory

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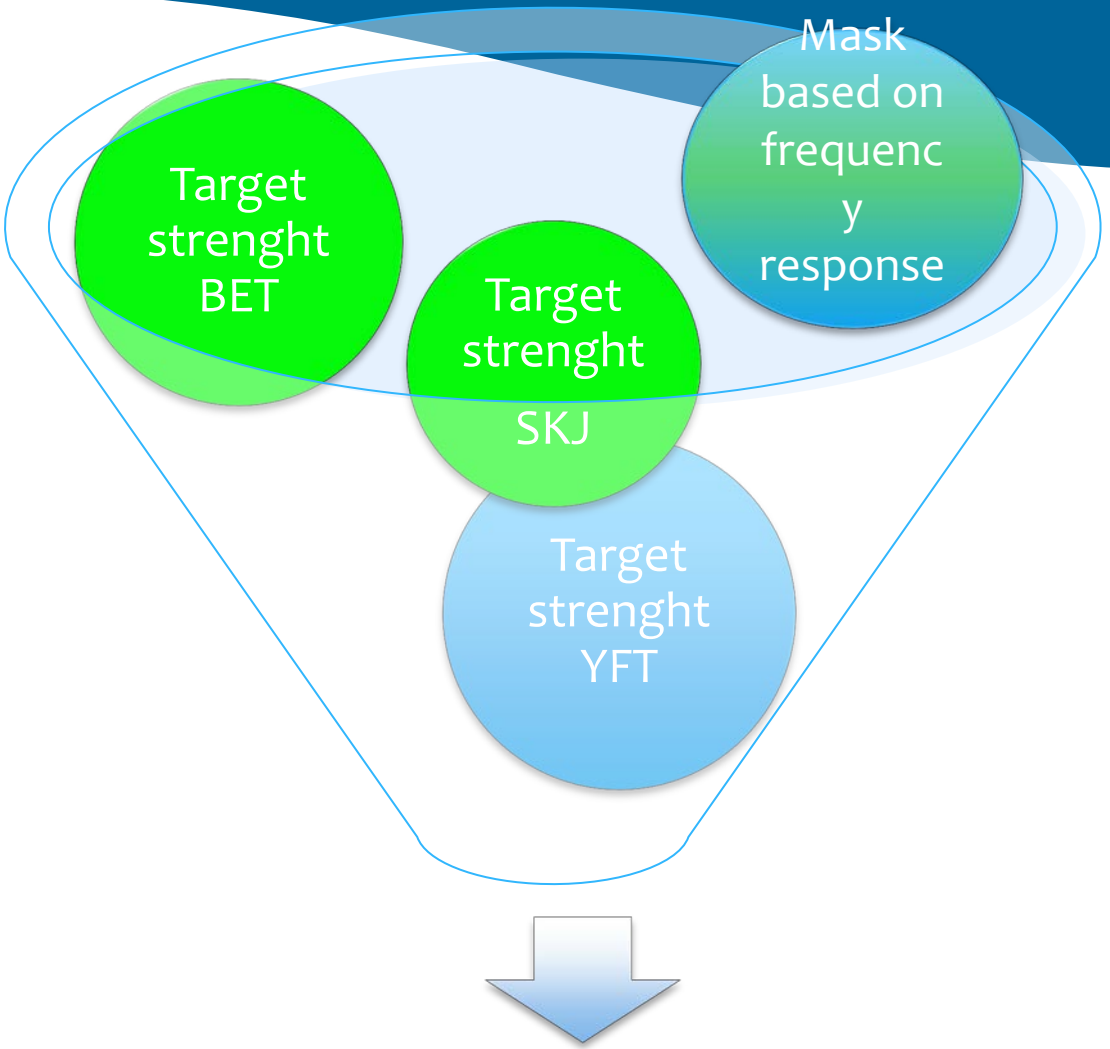

Tuna species discrimination at FADs

- ✓ The potential to discriminate between SKJ from BET and YFT is confirmed.
- ✓ There is no echo-sounder buoy with discrimination capability yet but buoy manufacturers are working with scientist to reach this goal.
- ✓ The use of improved echo-sounder buoys, properly managed, would allow more selective fishing.
- ✓ The use of echo-sounder buoys´ data for science could provide fishery-independent data on distribution and abundance of tuna species.

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Acknowlegments

- ✓ IATTC staff
- ✓ Members of the EPO tuna purse seine fleets working with DFADs:

  Ship-owners and fishers who shared their knowledge