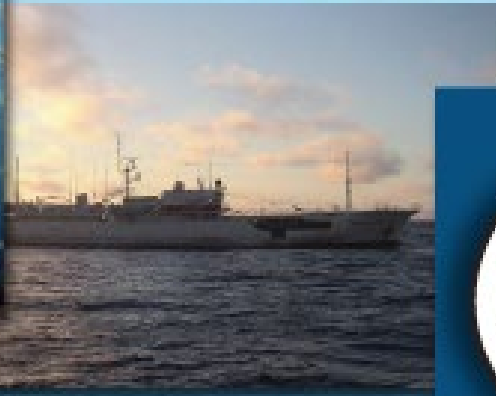


# Comisión Interamericana del Atún Tropical Inter-American Tropical Tuna Commission



Floating-object fishery indicators: a 2021 report

Indicadores de la pesquería con objetos-flotantes: un informe de 2021

Jon Lopez\*, Marlon Román, Cleridy E. Lennert-Cody, Mark N. Maunder, Nick Vogel, Leanne Fuller

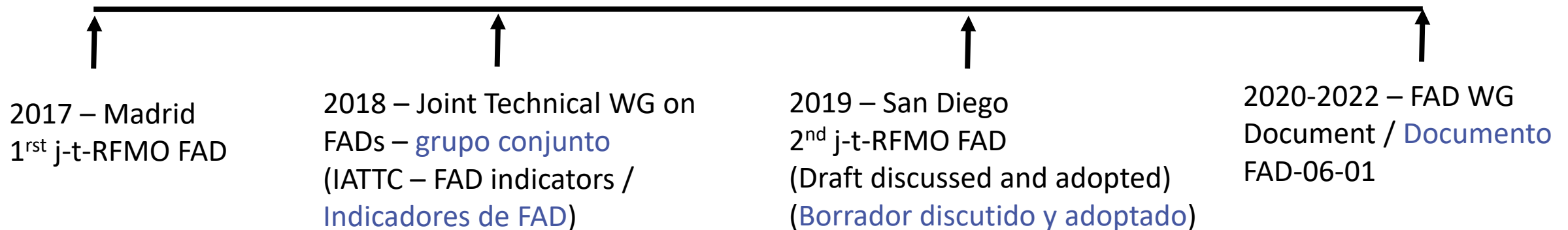
[\\*jlopez@iattc.org](mailto:*jlopez@iattc.org)

6ª Reunión del Grupo de Trabajo *Ad hoc* sobre plantados - 12-13 de mayo de 2021 (por videoconferencia)

6<sup>th</sup> Meeting of the *Ad Hoc* Working Group on FADs - 12-13 May 2021 (by videoconference)

# Background - Introducción

- Multi-dimensional impacts of the fishery, it must be holistically monitored
- Impacto multidimensional de la pesquería que requiere ser monitorizada de manera integral



# Outline - Plan

Indicator Type	Priority - Prioridad 1 Major – Mayor, 2 Moderate - Moderada, 3 Minor – Menor	Tipo de indicador
Catch and effort	1	Captura y esfuerzo
Activity	1	Actividades
Buoy/FAD-use	1	Uso de Boyas/FAD
Capacity	1	Capacidad
Technology	2	Tecnología
Ecosystem-Impact	2	Impacto-Ecosistema
Socio-Economico	3	Socio-Economico
Bio-Eco-Behavior	3	Bio-Eco- Comportamiento

# Data - Datos

Three main datasets – Tres bases de datos:

a. 2016-2021 AIDCP observer data for Class-6 vessels [fleet behavior, activities, and technology].

a. Datos de observadores AIDCP 2016-2021 para buques de clase 6 [comportamiento de la flota, actividades sobre plantados y tecnología]

b. Catch and effort data for all vessels (Classes 1-6) [catch and effort]

b. Datos de captura y esfuerzo para toda la flota (Clase 1-6) [captura y esfuerzo]

c. Daily active buoy data for 141 vessels (Classes 1-6) reporting during 2021. 163 vessels during 2018-2021 [buoy-based indices]

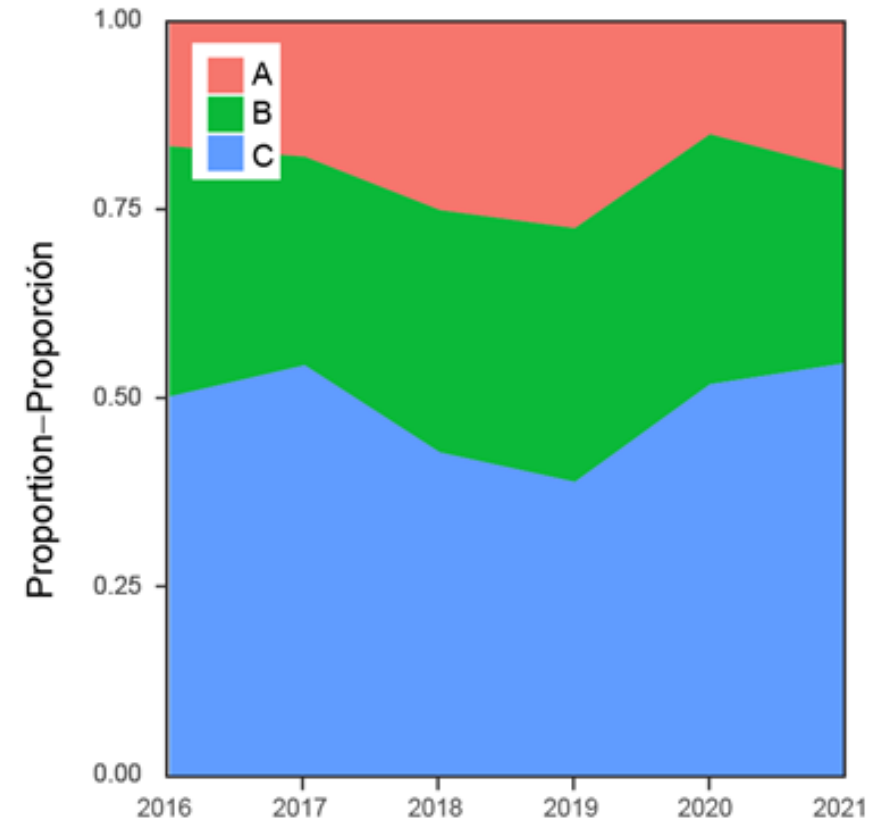
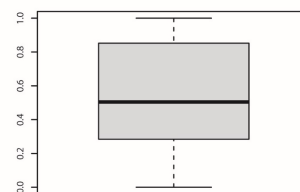
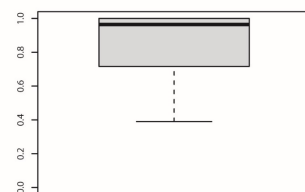
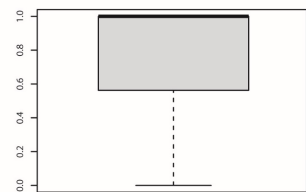
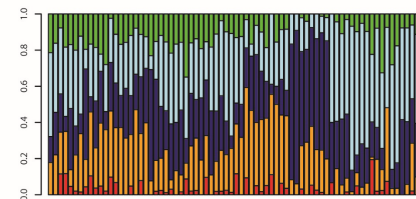
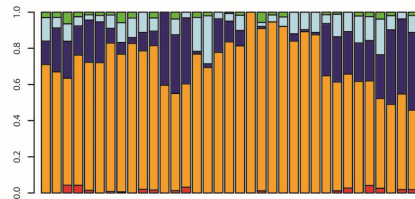
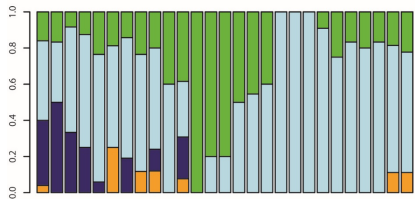
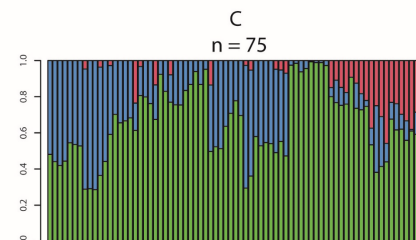
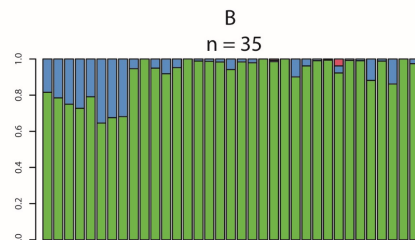
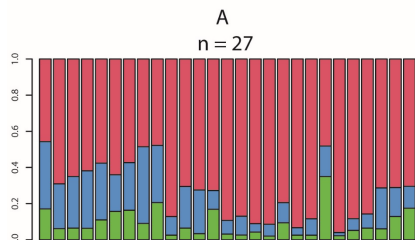
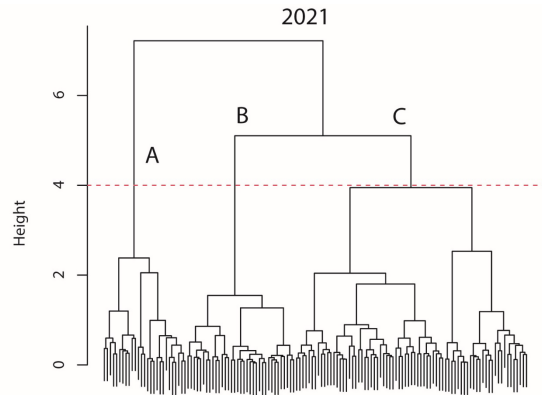
c. Datos de boyas activas proporcionados por 141 buques de clase 1-6 durante 2020. 163 buques durante 2018-2021 [índices basados en boyas]

# Fleet segments – Segmentos de la flota

A = > 100W + DEL and opportunistic OBJ sets

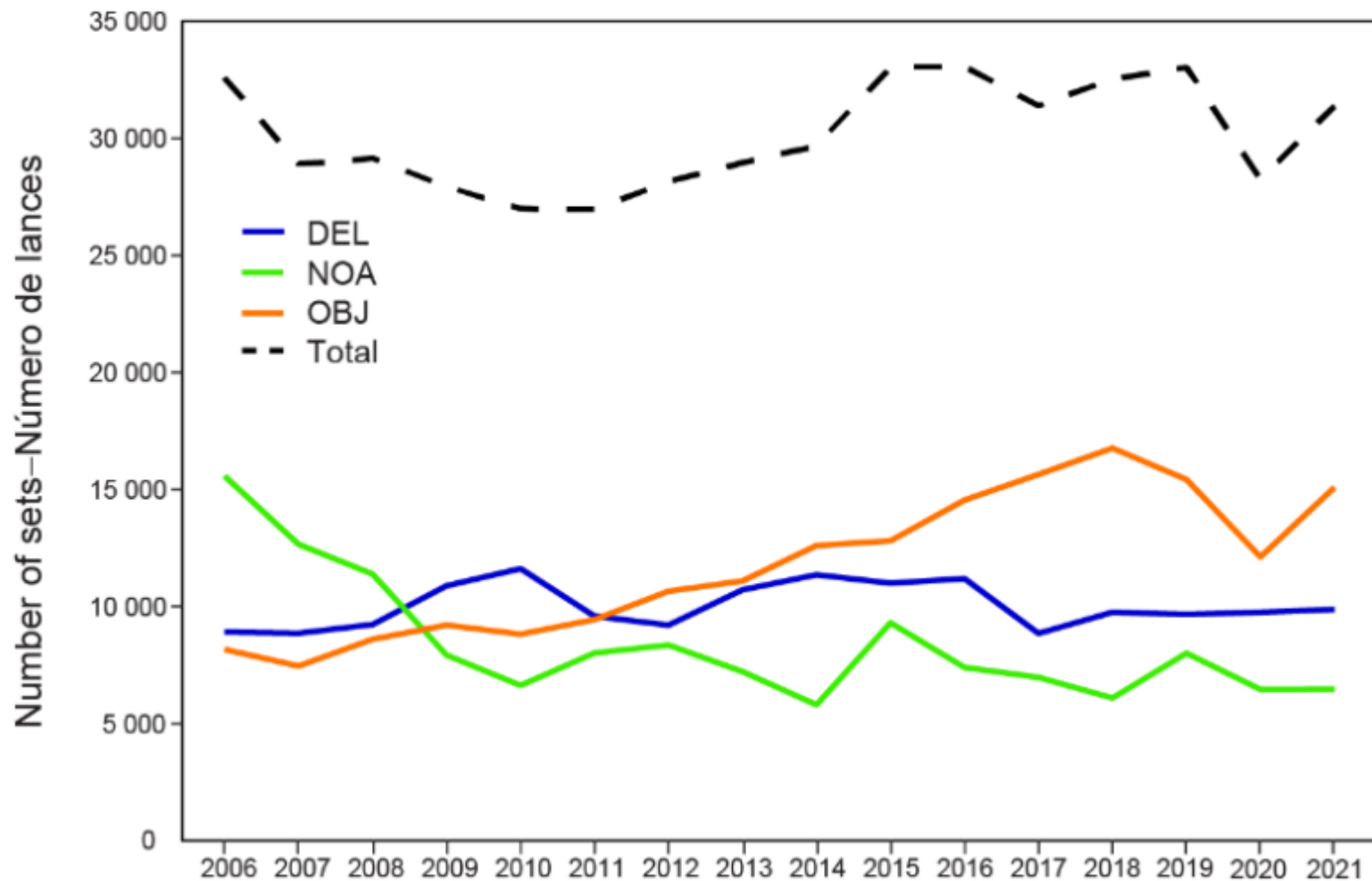
B = >100W + OBJ sets (monitored)

C = <100W + mix of set types

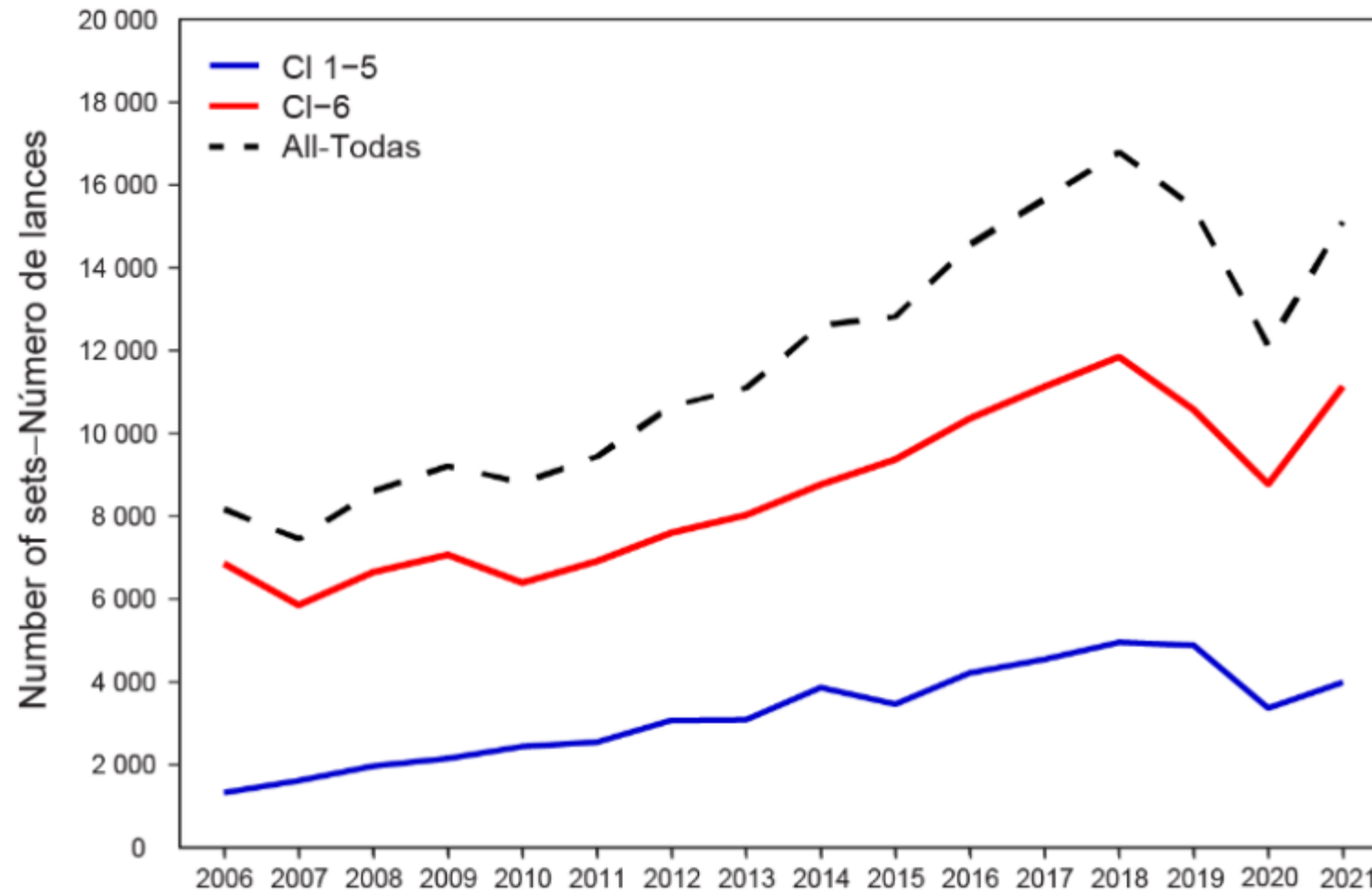


# Catch and effort - Captura y esfuerzo

# Total number of sets by set type – Numero total de lances por tipo de lance

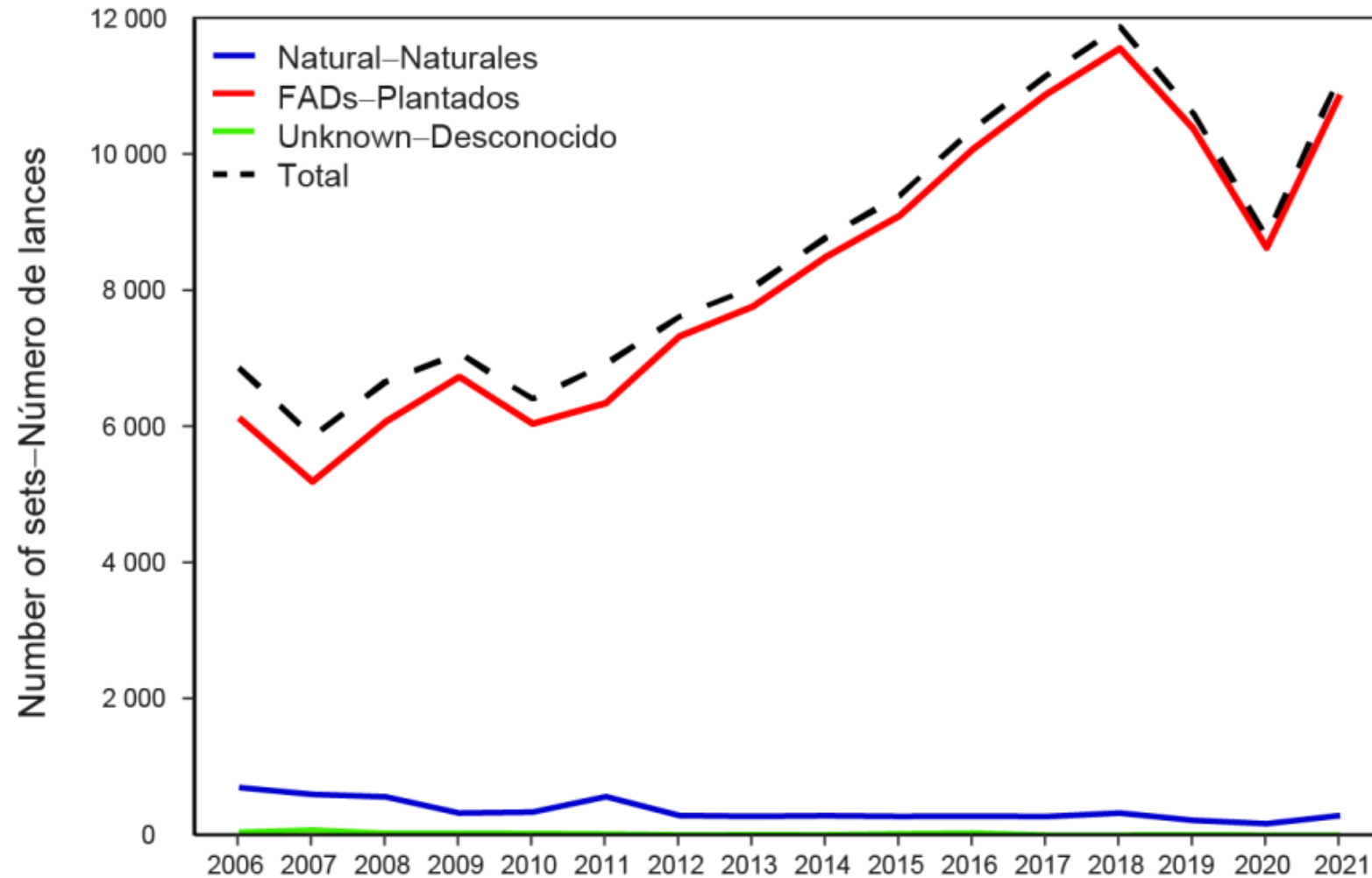


# Number of sets on floating object by Class-size vessel – Numero de lances sobre OBJ por clase

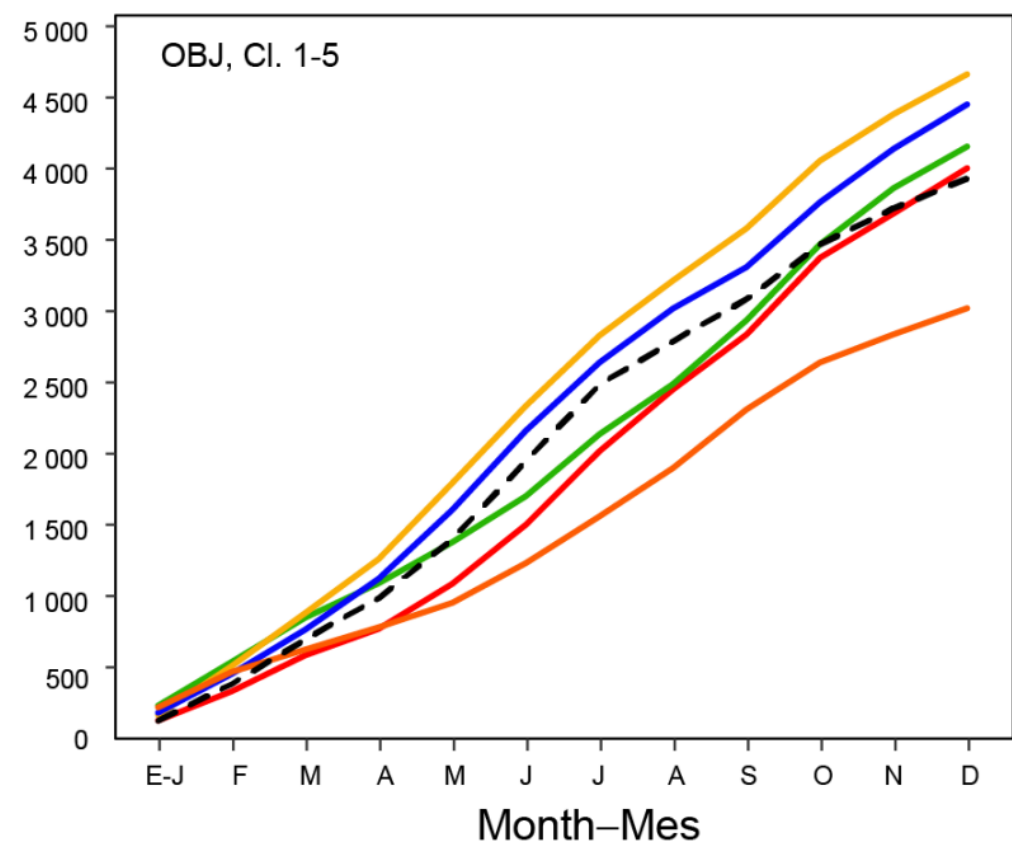
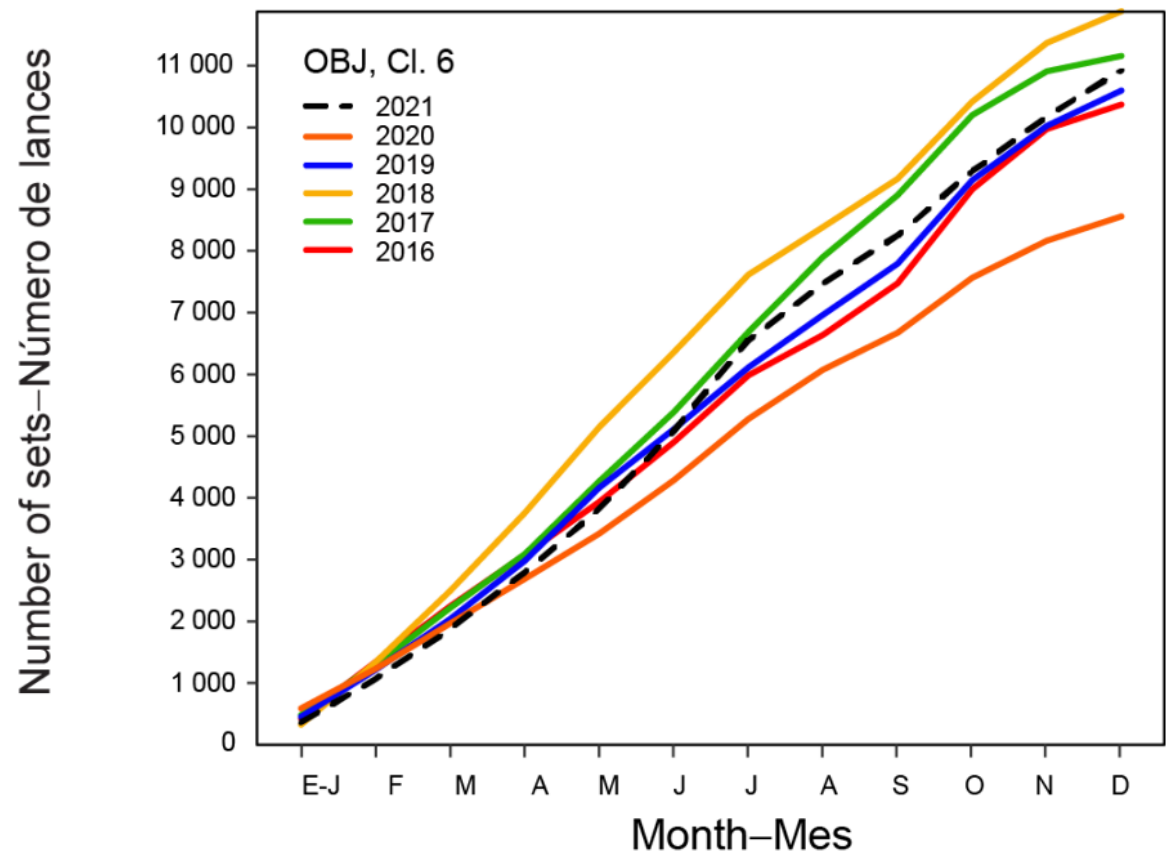




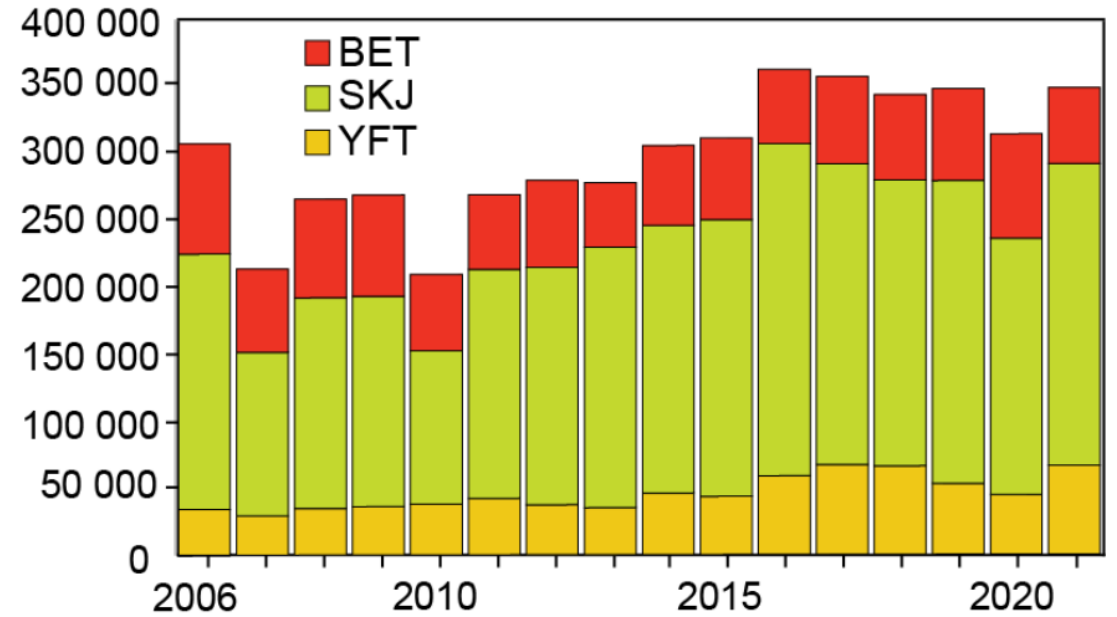
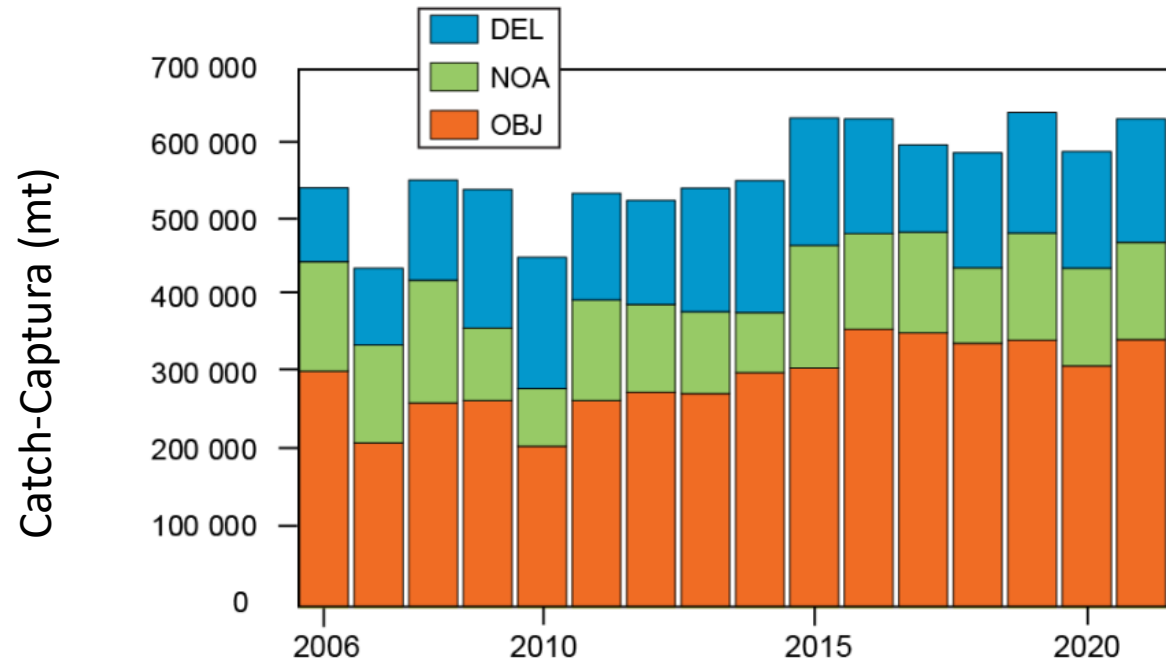
# Sets by type of floating object made by Class-6 vessels – Lances sobre diferentes tipo de objeto para los buques de clase 6



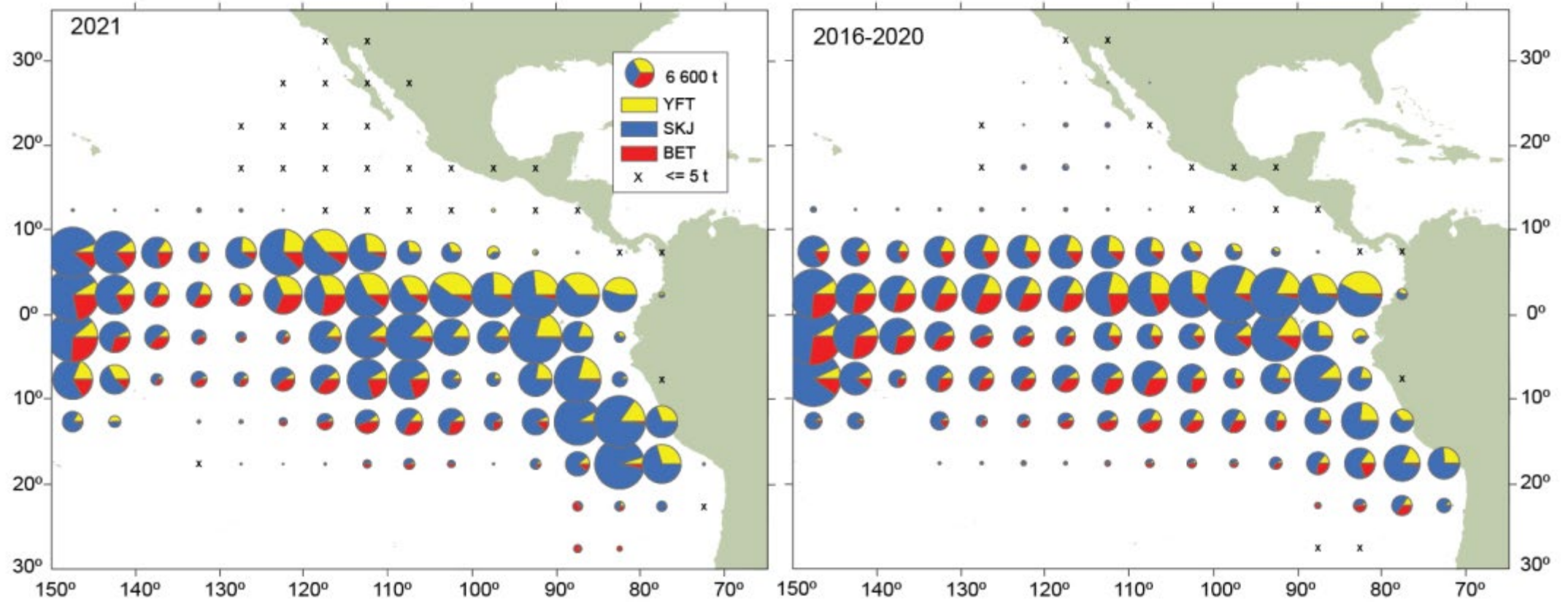
# Cumulative sets by Class-size vessel and set type – Lances acumulados para las diferentes clases de buques y tipo de lance



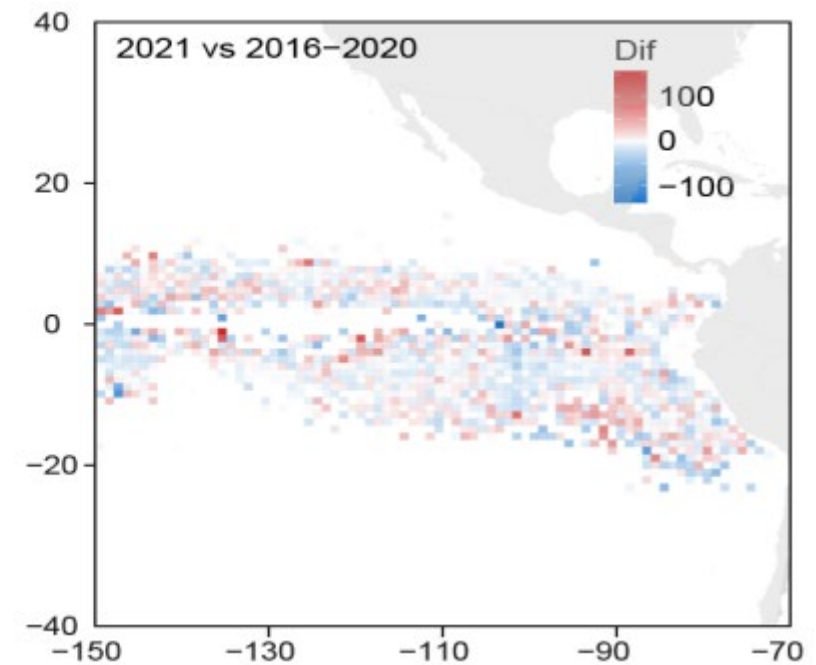
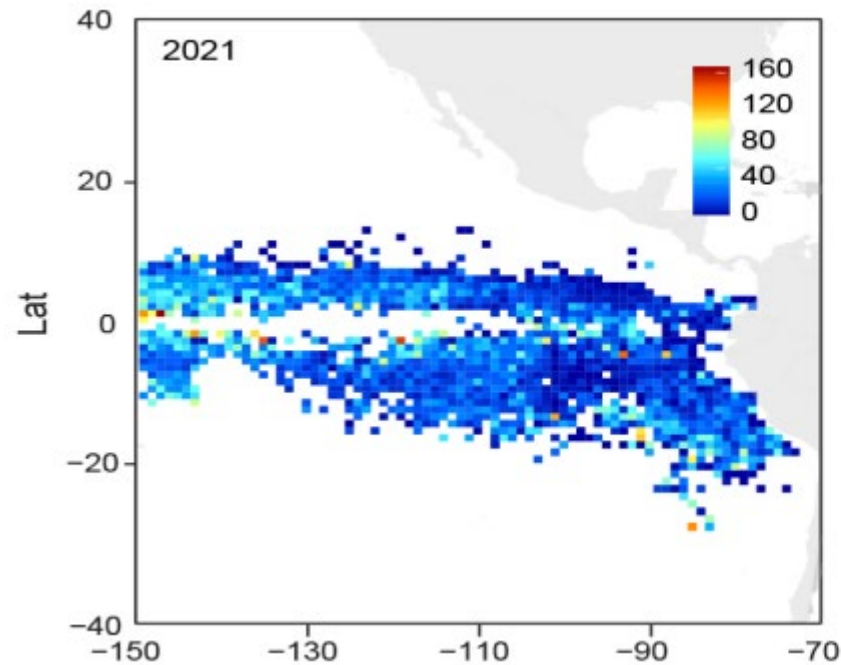
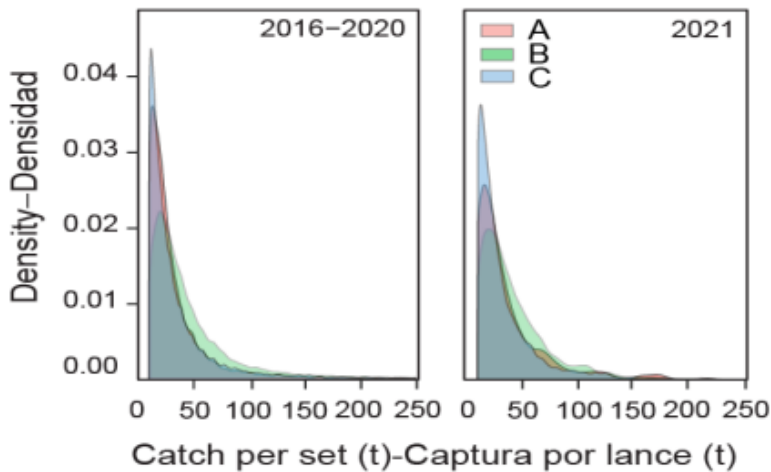
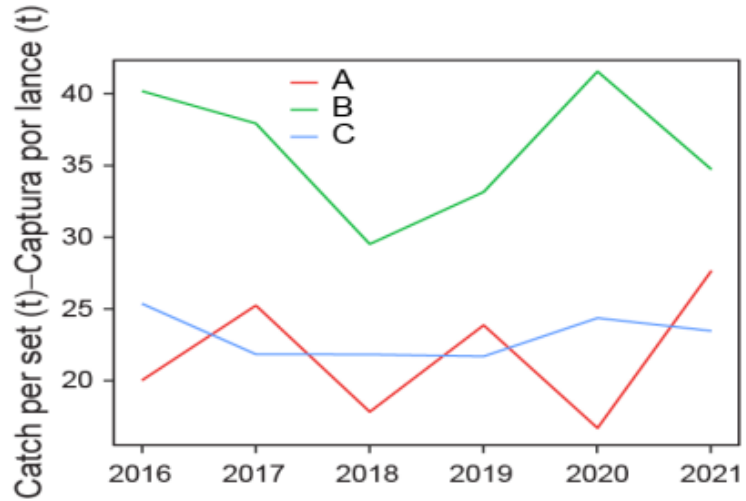
# Catch by set type (and species) – Captura por tipo de lance (y especie)



# Spatial distribution of catches – Distribución espacial de las capturas



# Catch per set – Captura por lance



# Activity on FAD – Actividad sobre FAD

# General OBJ activity table – Tabla de actividad general sobre OBJ

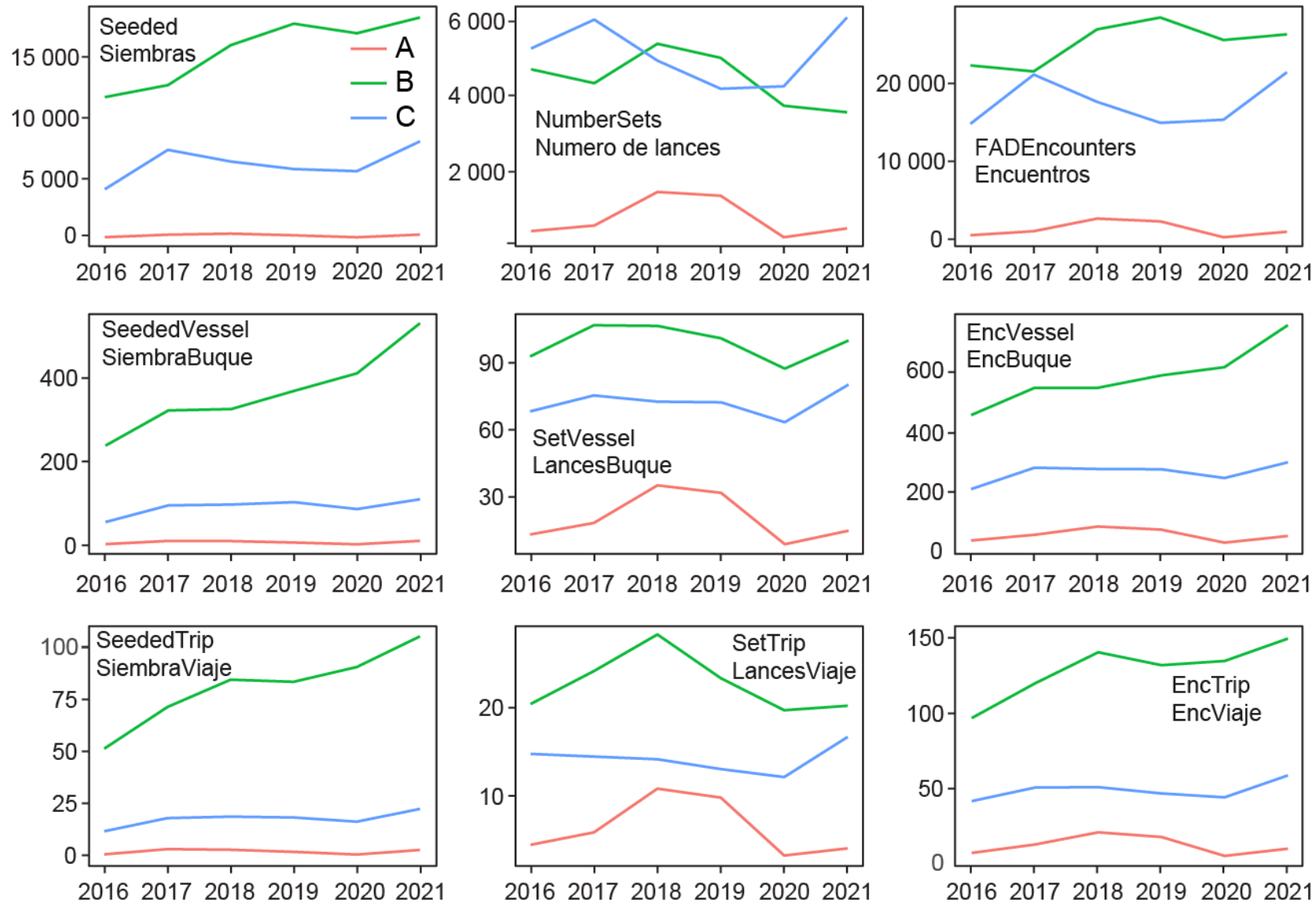
Only class 6 vessels > 5 OBJ sets – Solo buques clase 6 con > 5 lances sobre OBJ

Year	Own Now	Own Prev	Dep	Given	Taken	Adrift	Unk	Oth	Enc	Sets	Ves	Trips
2016-2020	24	6638	21072	3809	6908	2711	6	4	43102	10296	145	656
2021	22	6490	26704	3484	6883	2842	2	3	48712	10050	137	643

Year	Deployments		Encounters		Sets	
	Vessel	Trip	Vessel	Trip	Vessel	Trip
2016-2020	145.3	32.1	297.3	65.7	71.0	15.7
2021	194.9	41.5	355.6	75.8	73.4	15.6

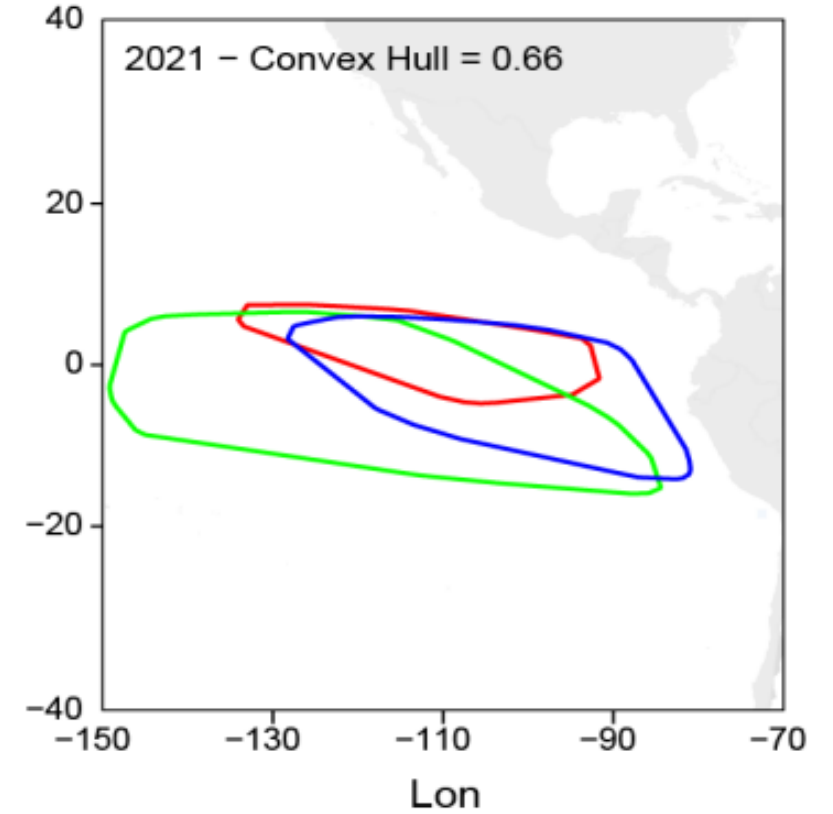
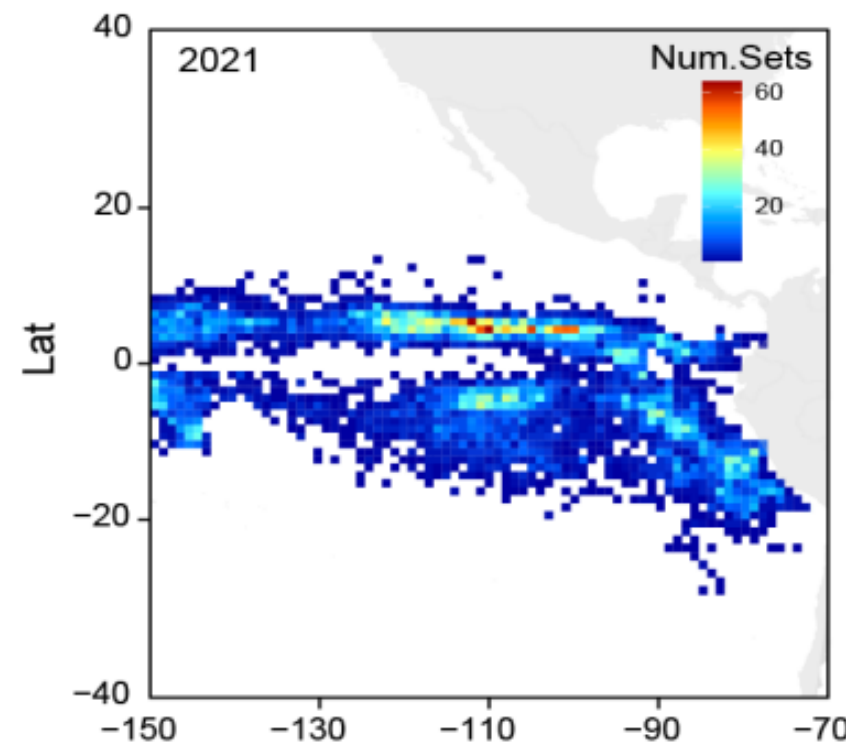
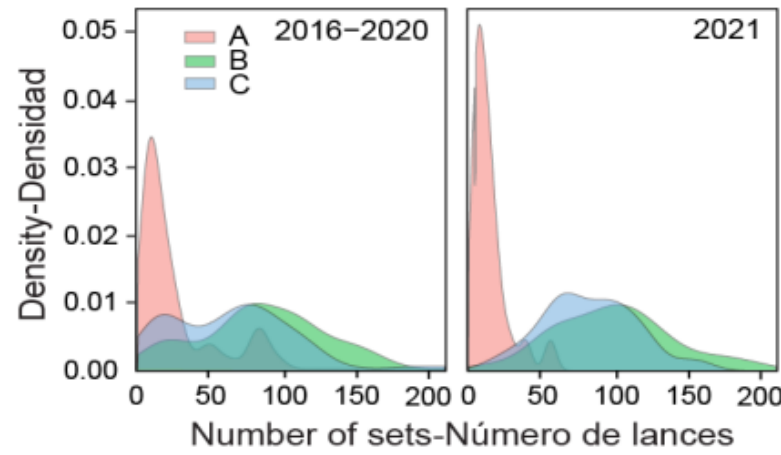
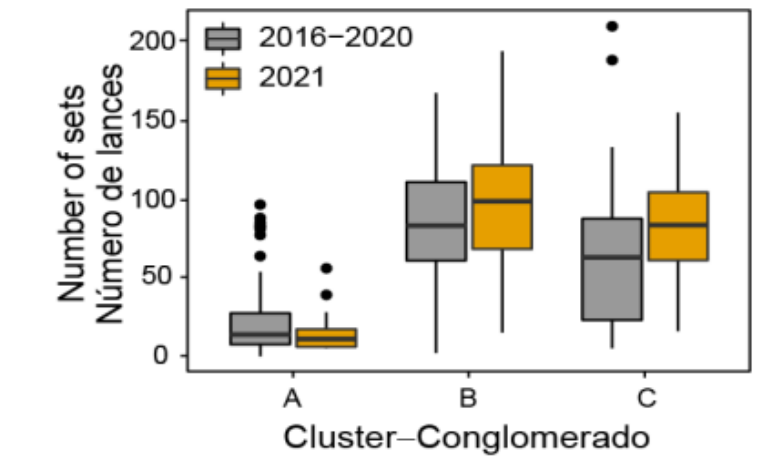
Year	Cluster	Deployments		Encounters		Sets	
		Vessel	Trip	Vessel	Trip	Vessel	Trip
2016-2020	A	4.6	1.5	45.1	14.3	24.8	7.8
	B	327.6	75.0	540.6	123.8	100.2	22.9
	C	84.0	16.1	243.2	46.6	71.4	13.7
2021	A	8.3	2.2	35.6	9.6	15.3	4.1
	B	526.8	104.8	751.7	149.5	101.2	20.1
	C	107.3	21.9	285.9	58.4	81.3	16.6

# General OBJ activity evolution – Evolución de actividad general sobre OBJ

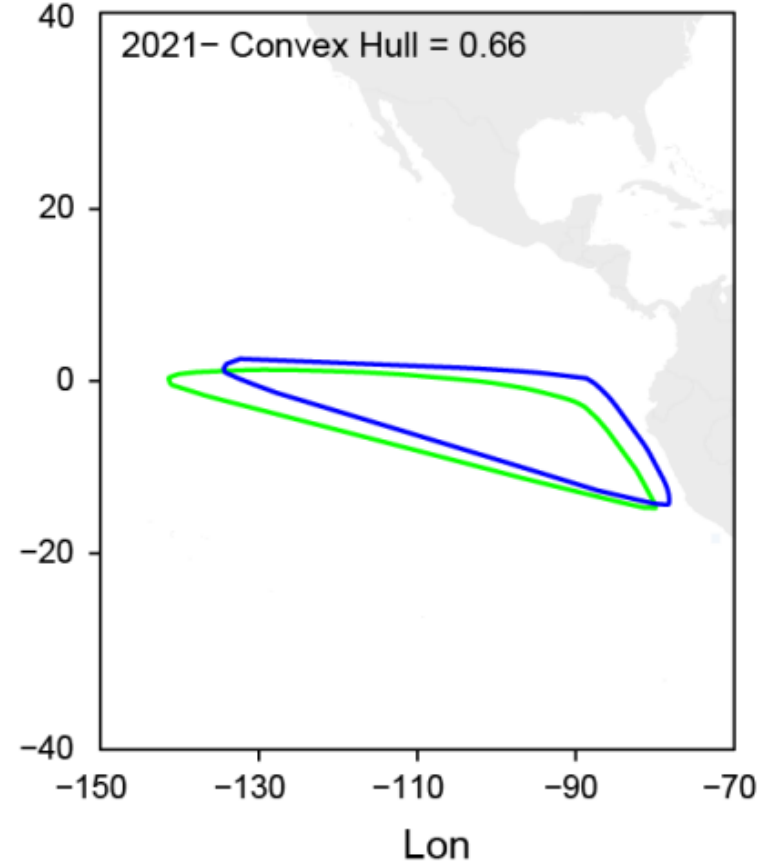
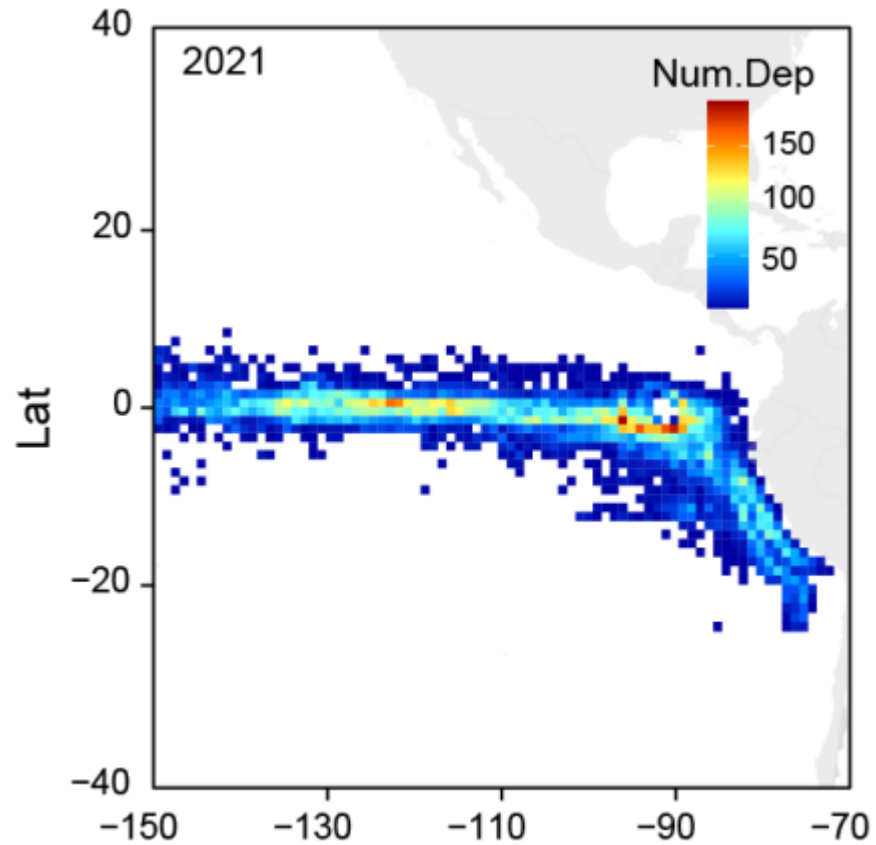
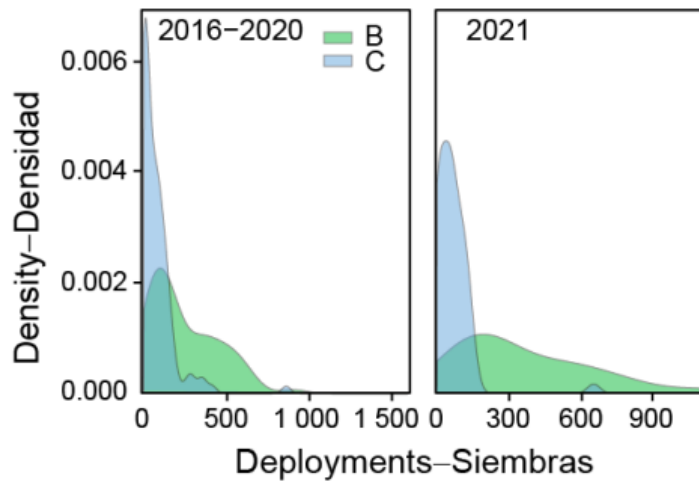
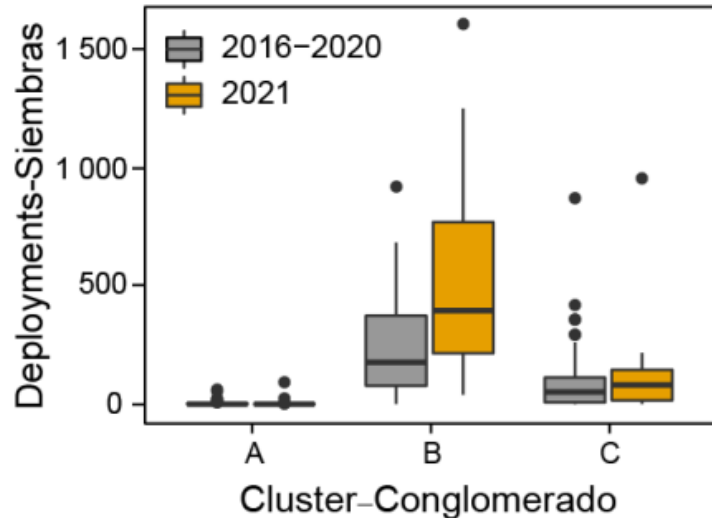




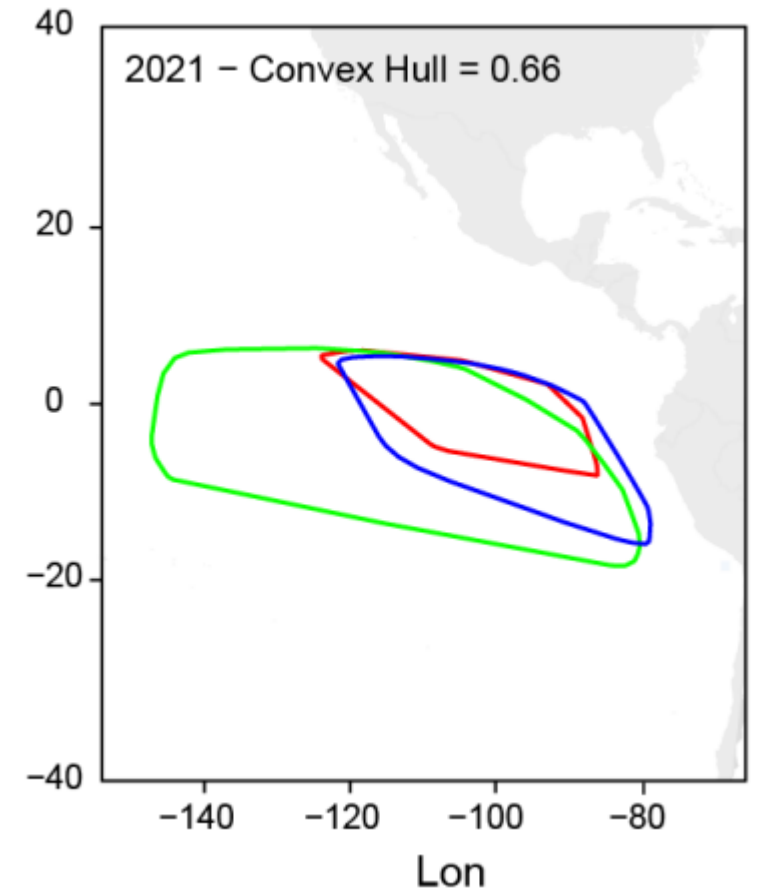
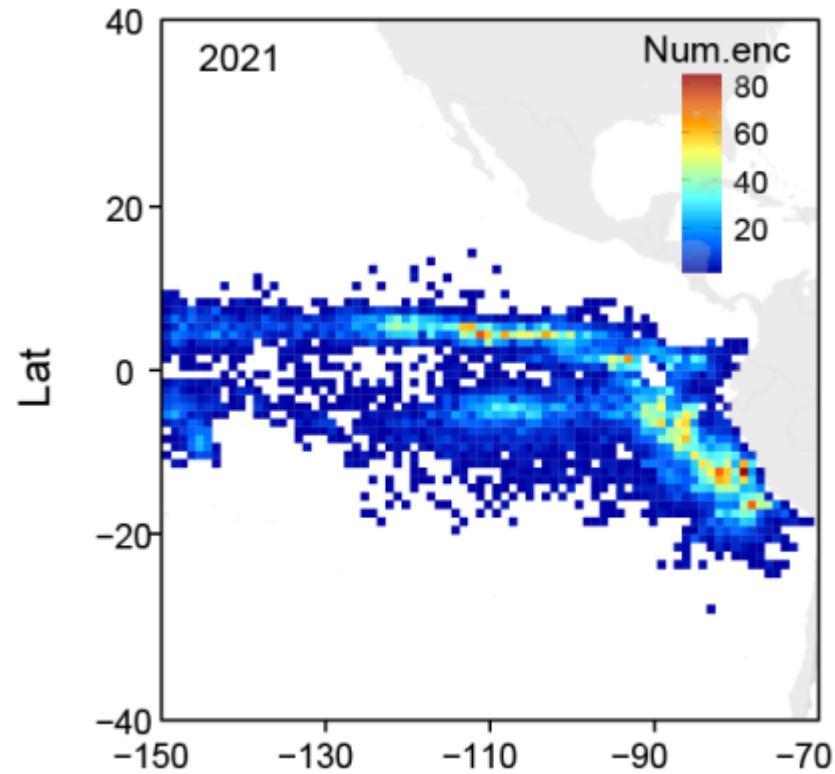
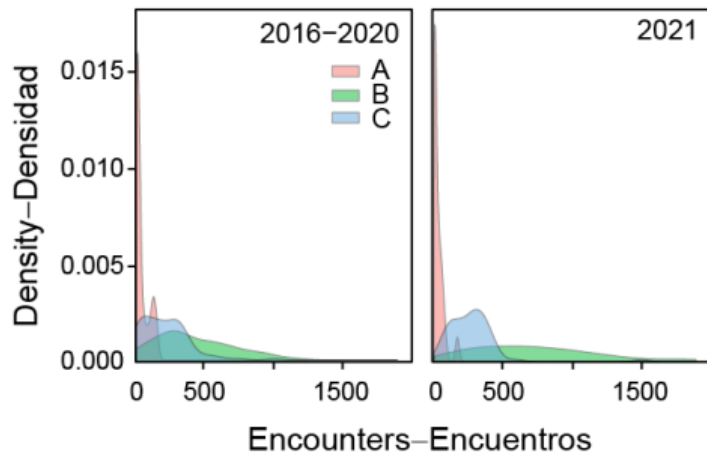
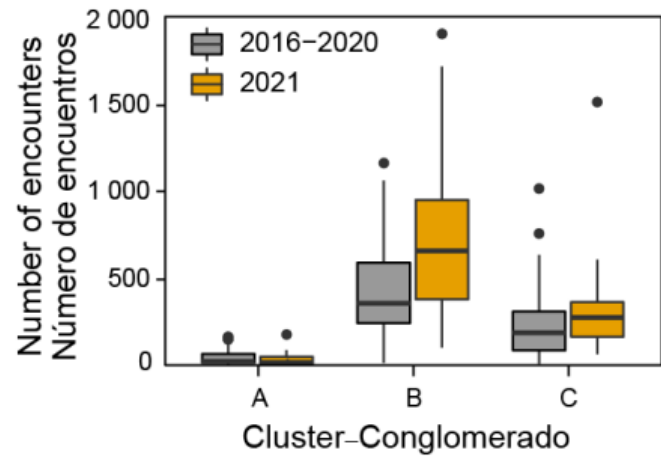
# OBJ sets – Lances sobre OBJ



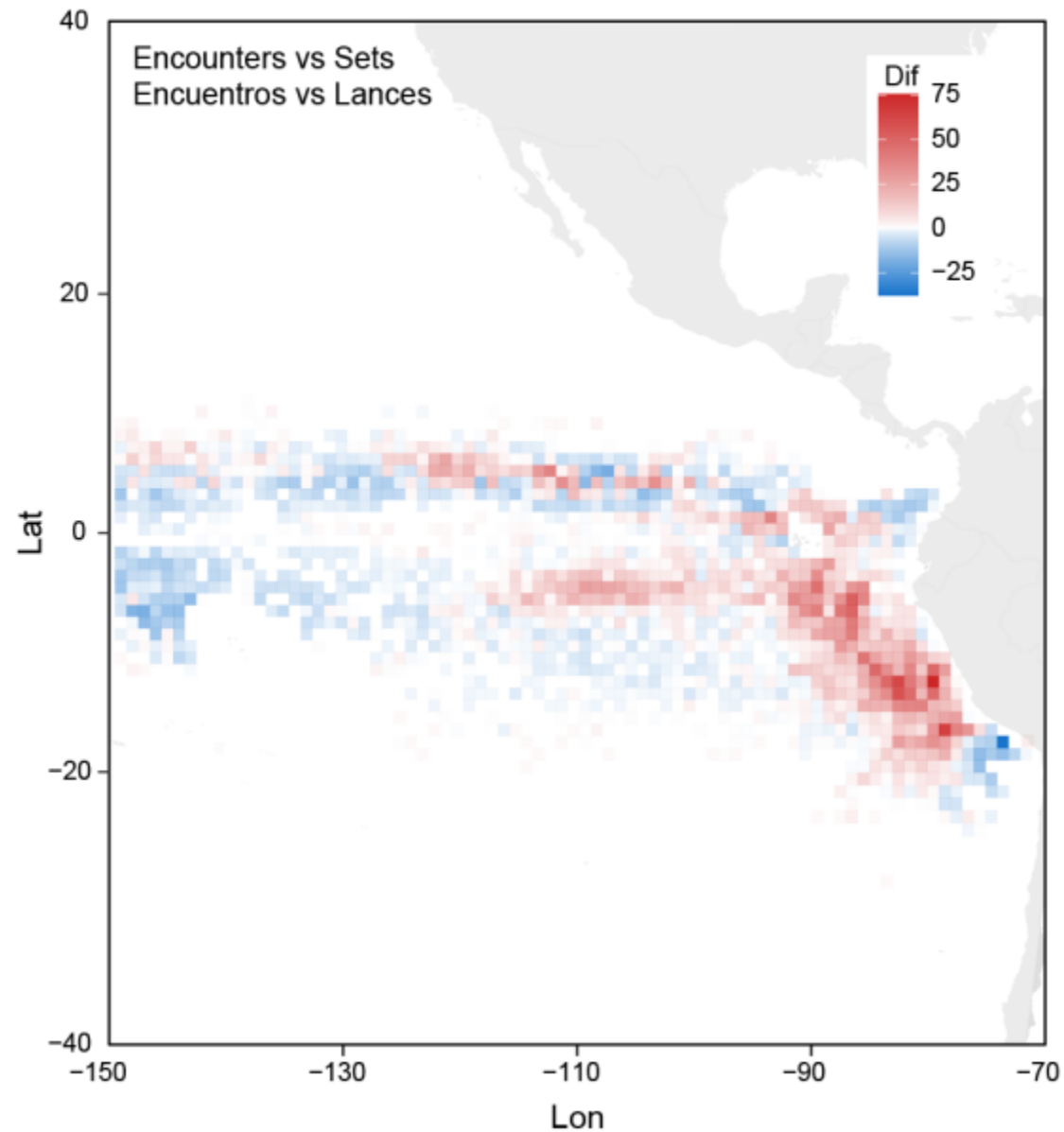
# Deployments – Plantaciones



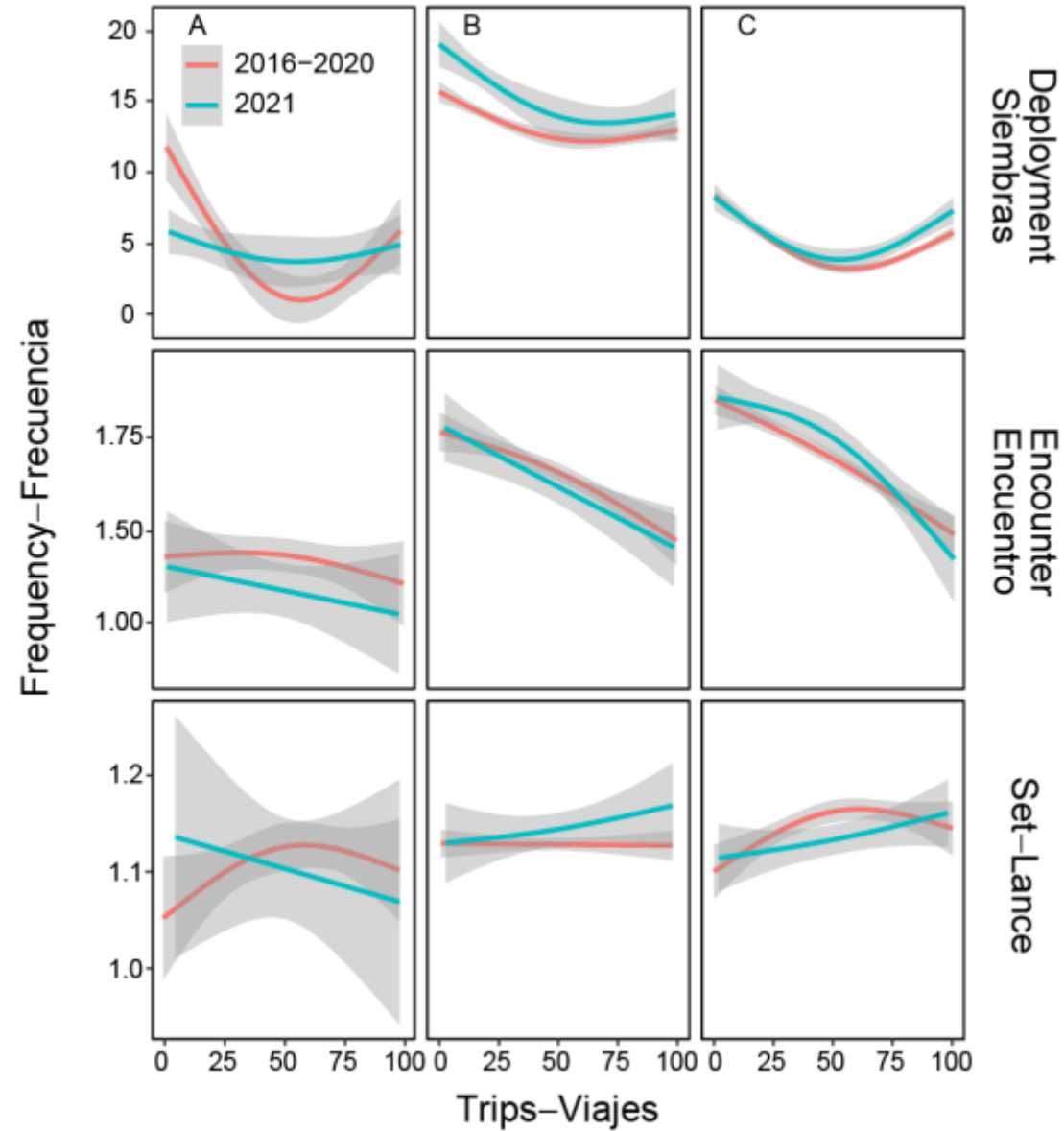
# Encounters – Interacciones



# Encounters vs Sets – Interacciones vs Lances



# Activities within the trip – Actividades durante el crucero



# OBJ Location method – Método de localización de OBJ

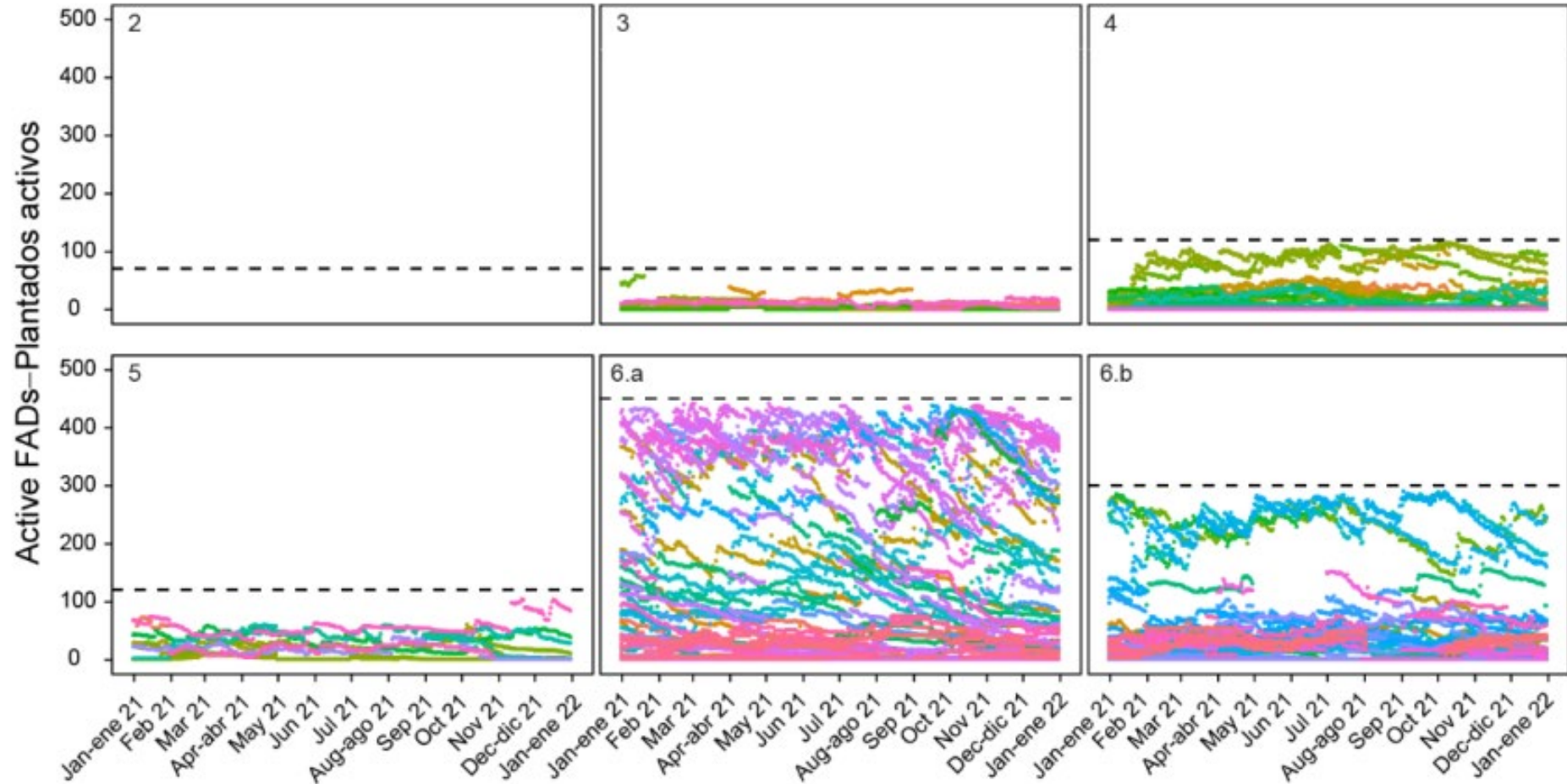


# Buoy-based – Basados en boyas

# Daily active FADs – Plantados activos diarios

Res. C-20-09

(147 buques-vessels)



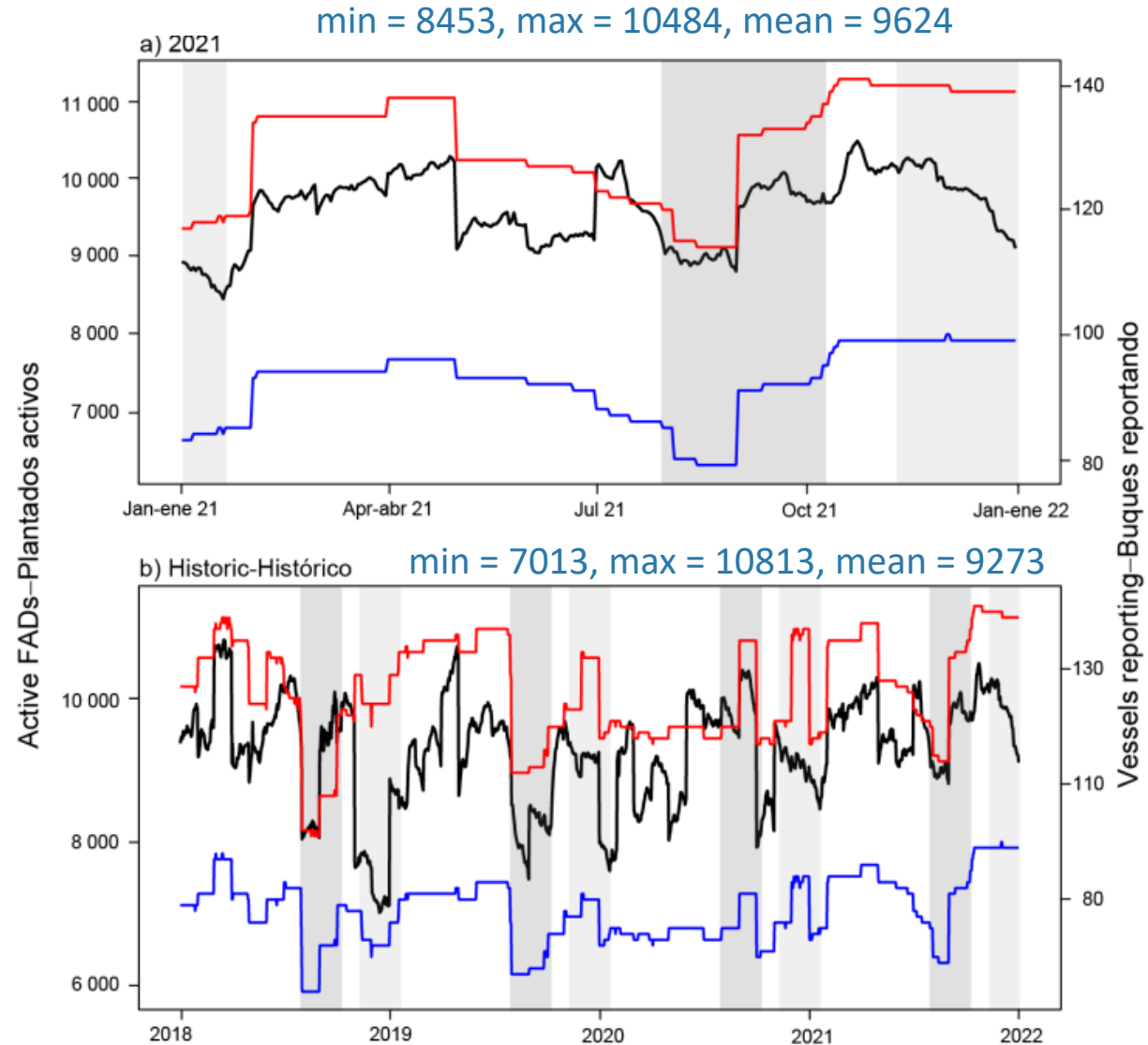


# Daily active FADs – Plantados activos diarios

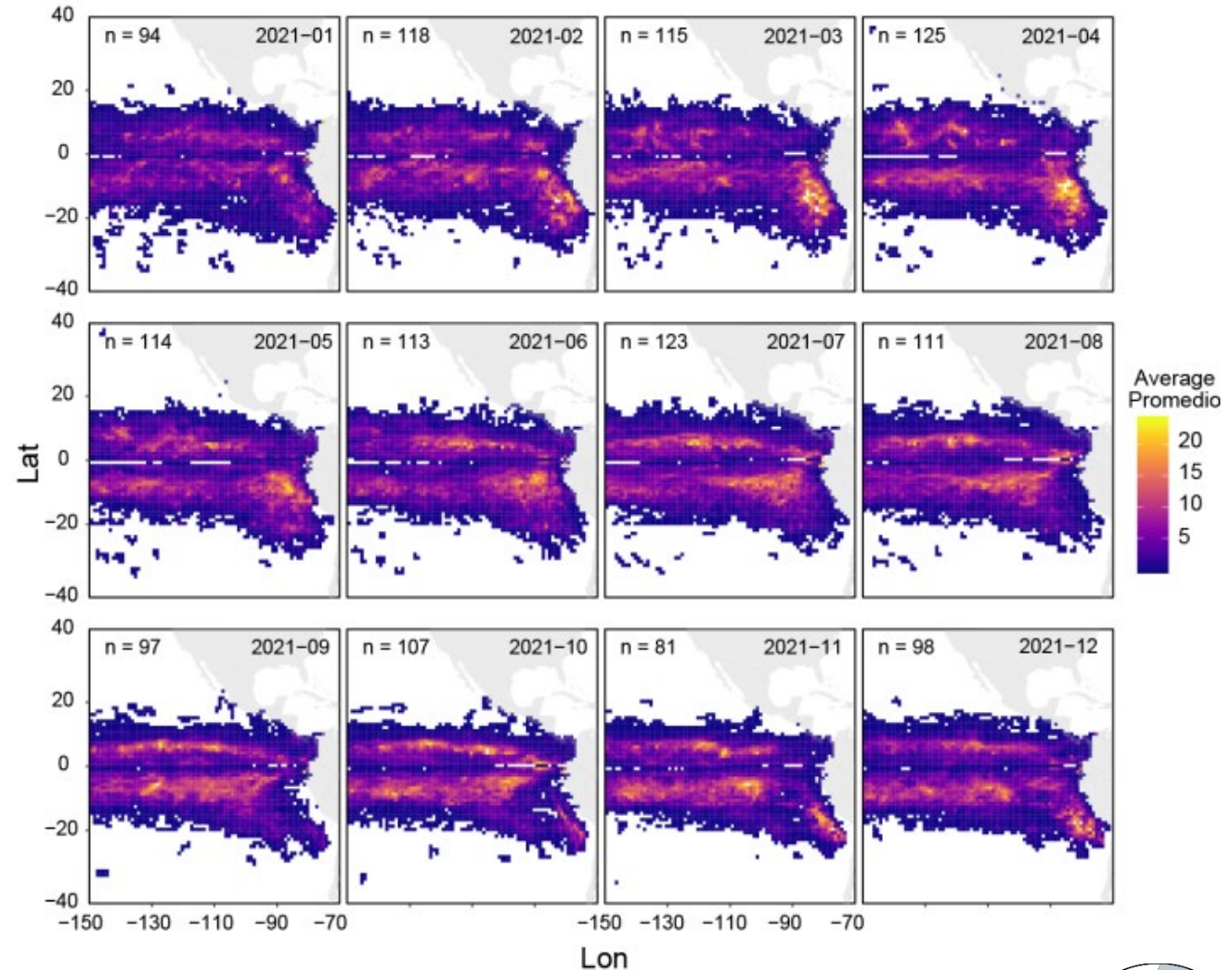
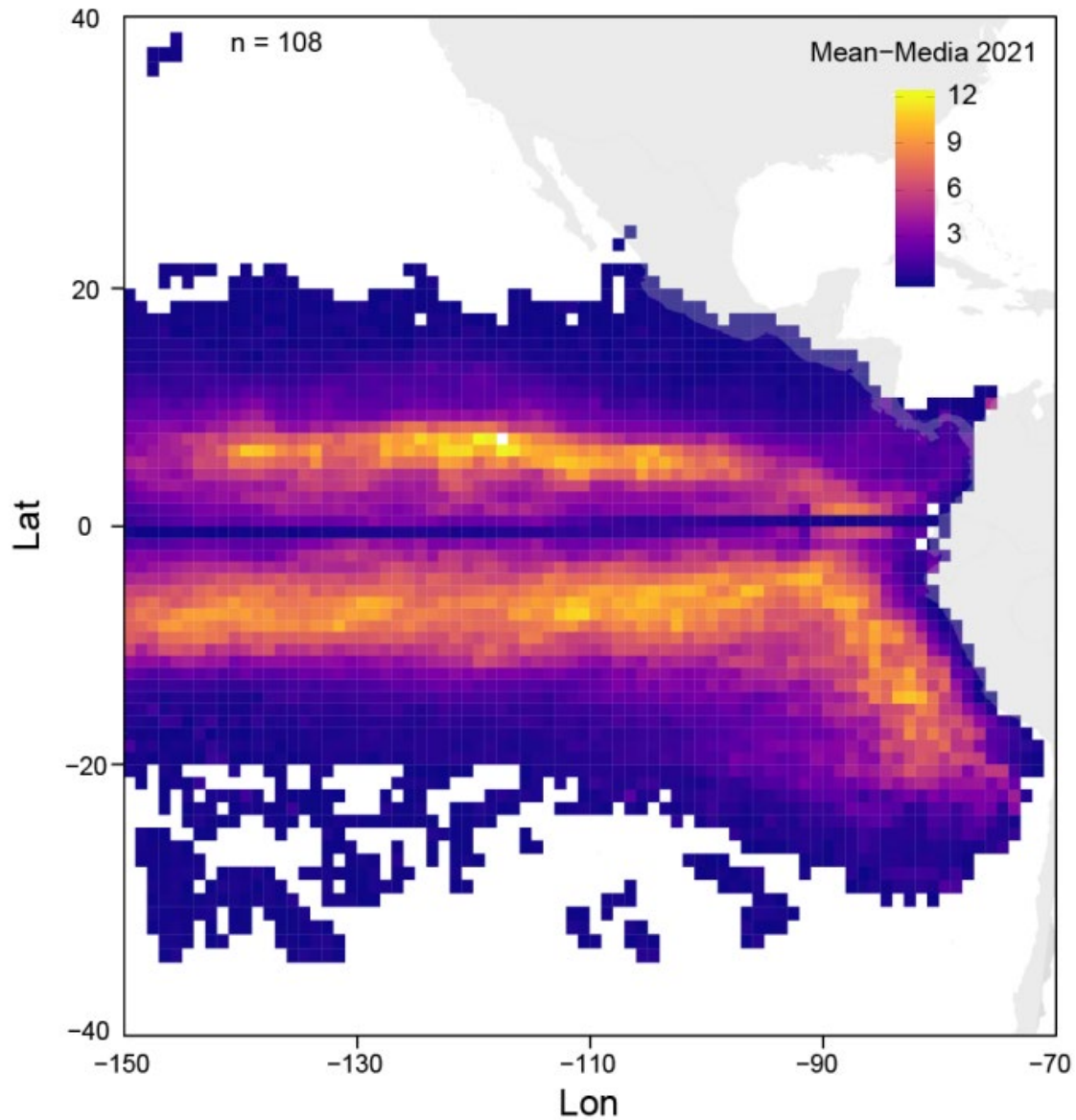


# Daily total active buoys – Boyas activas diarias

141 vessels-buques  
(104 Class 6  
37 Class 1-5)



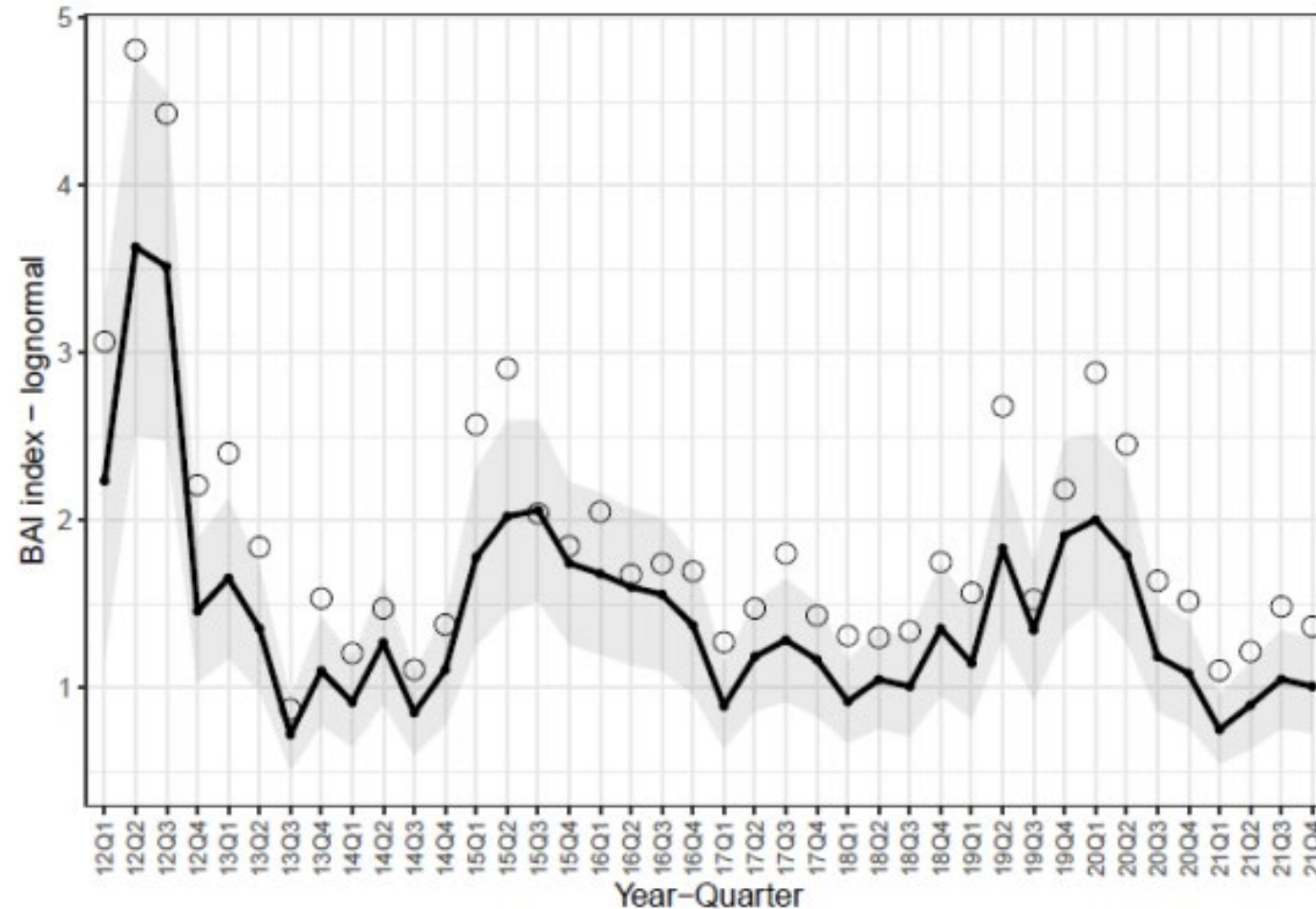
# Active FADs densities – Densidades de plantados activos



81-125 vessels-buques  
8442-11139 FADs-DCPs



# Buoy Abundance Index – Índice de abundancia derivado de boyas

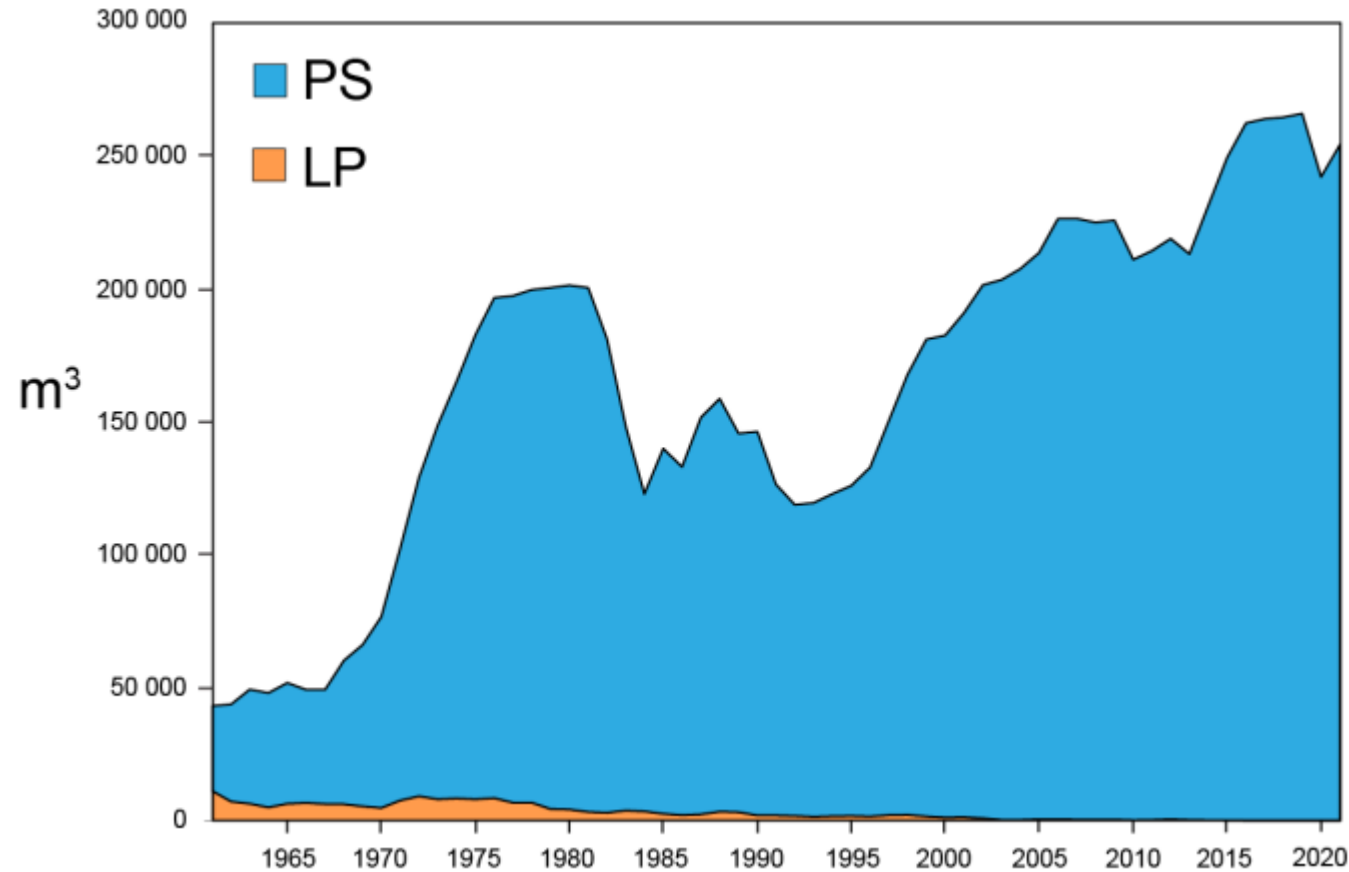


[FAD-06-03](#) – BAI SKJ index / IAB barrilete

[SAC-13-07](#) - SKJ assessment / evaluación de barrilete

# Capacity – Capacidad

# Carrying Capacity – Capacidad de la flota

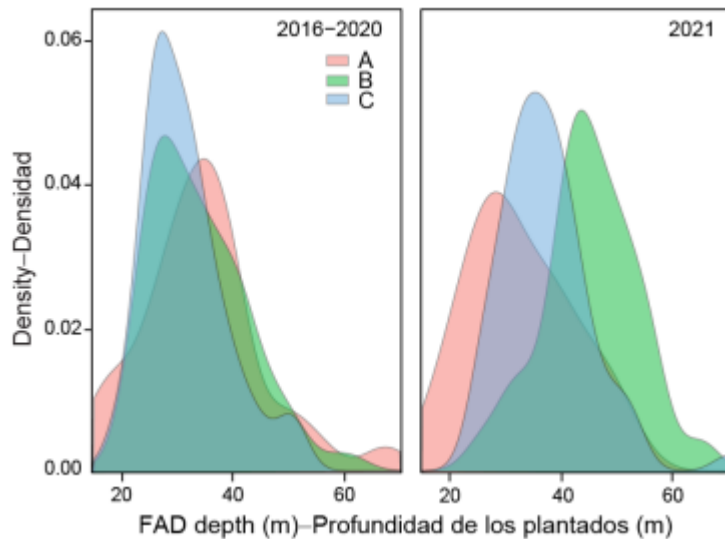
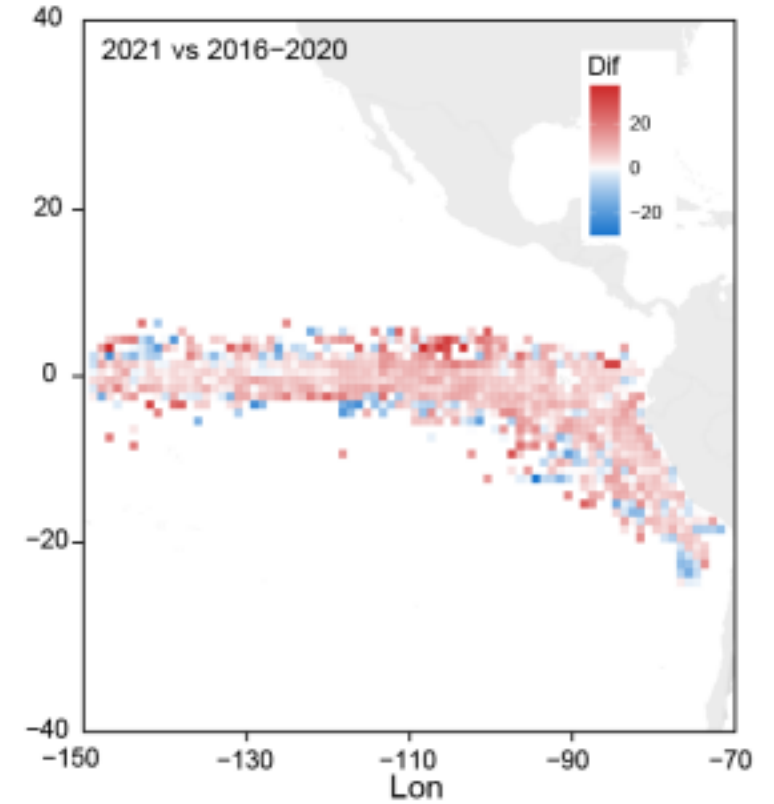
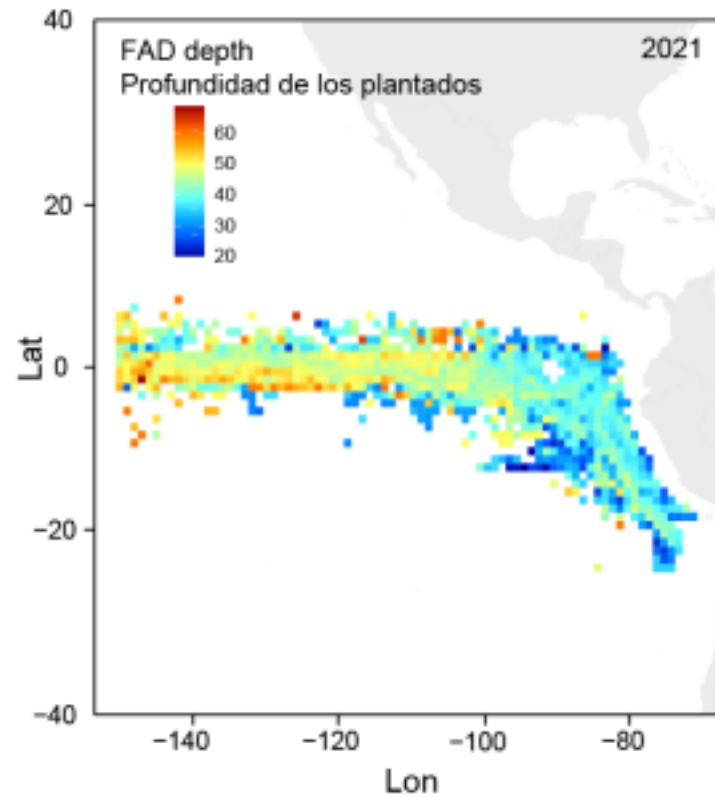
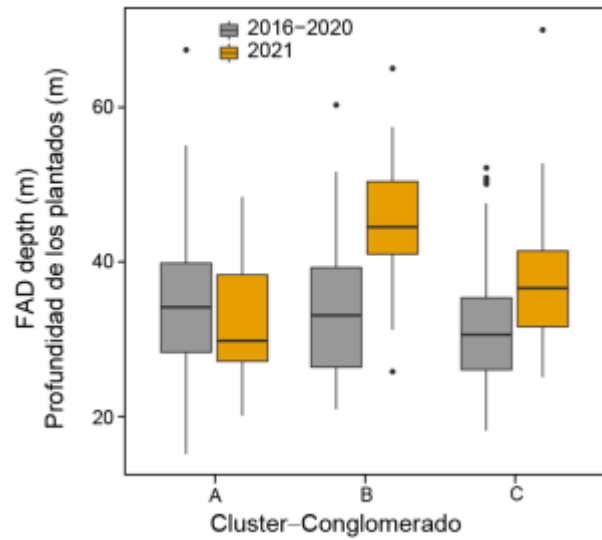


~253K annual/annual  
(236 vessels/buques)

~142K/monthly-  
mensual (~%59)

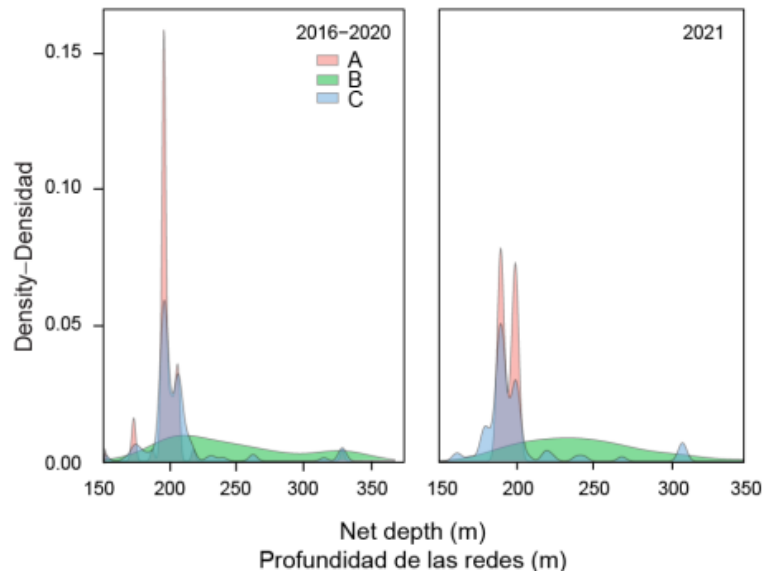
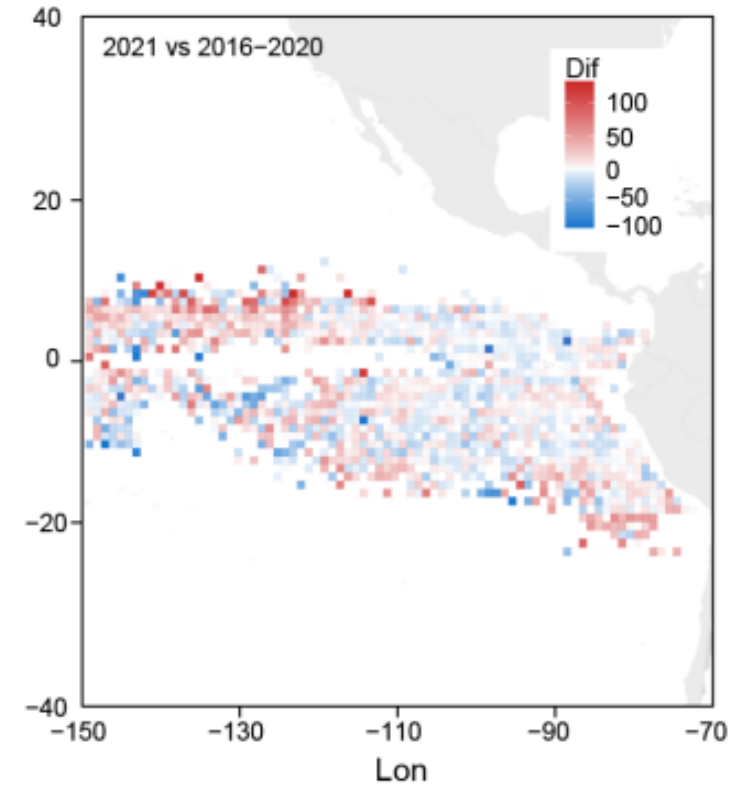
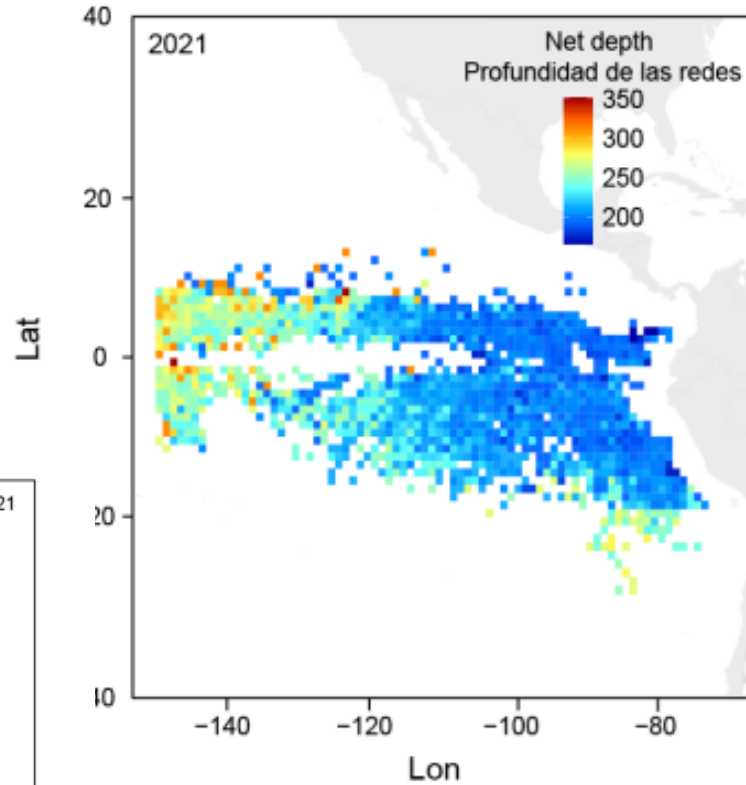
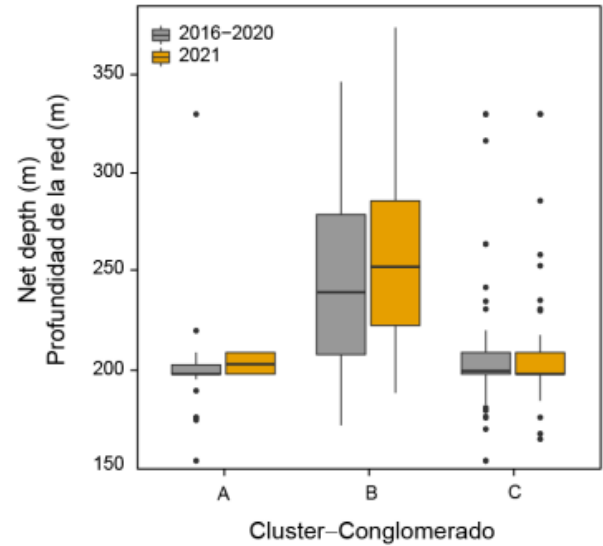
# Technology – Tecnología

# FAD depth – Profundidad de plantados

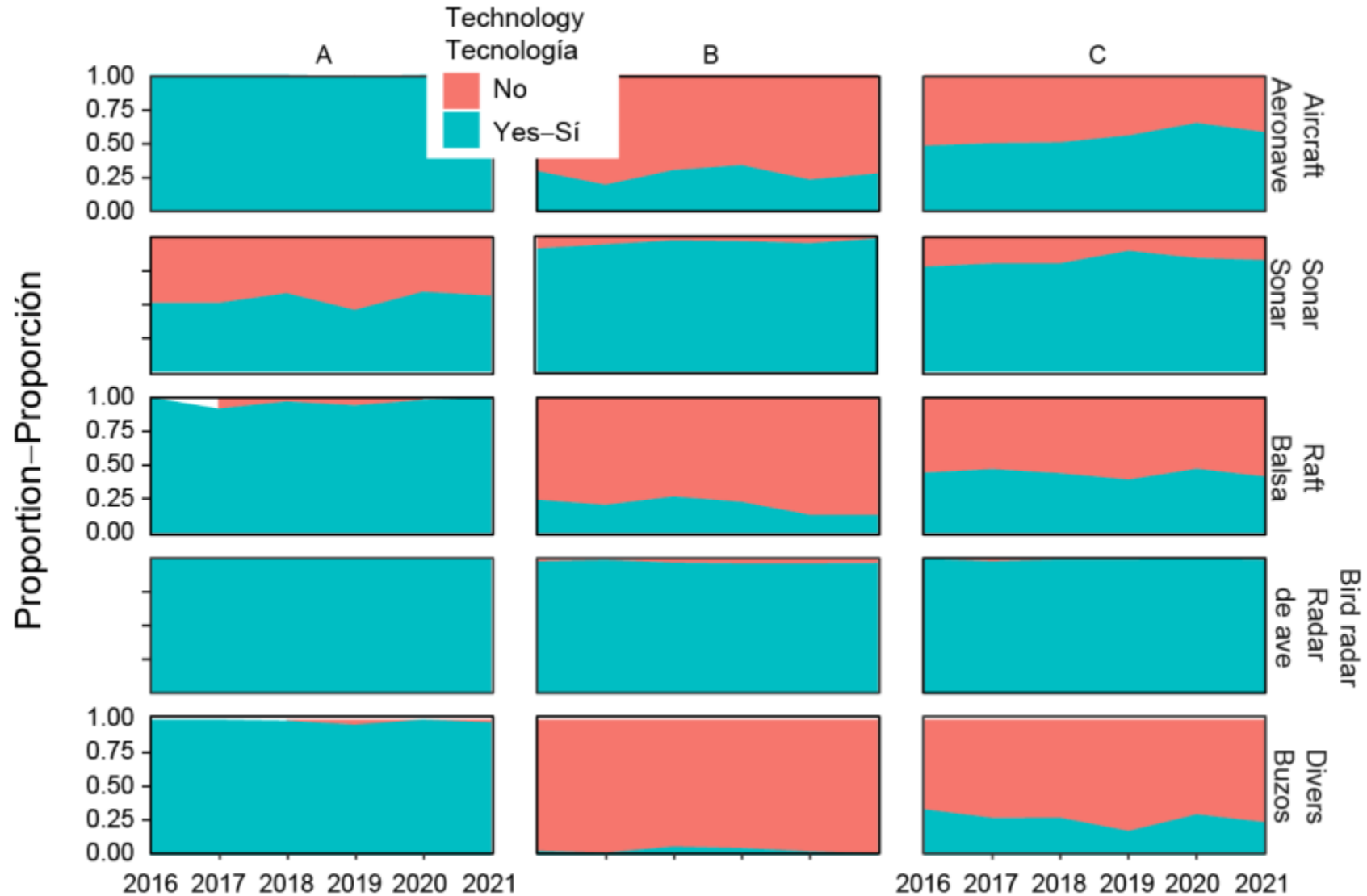




# Net depth – Profundidad de red



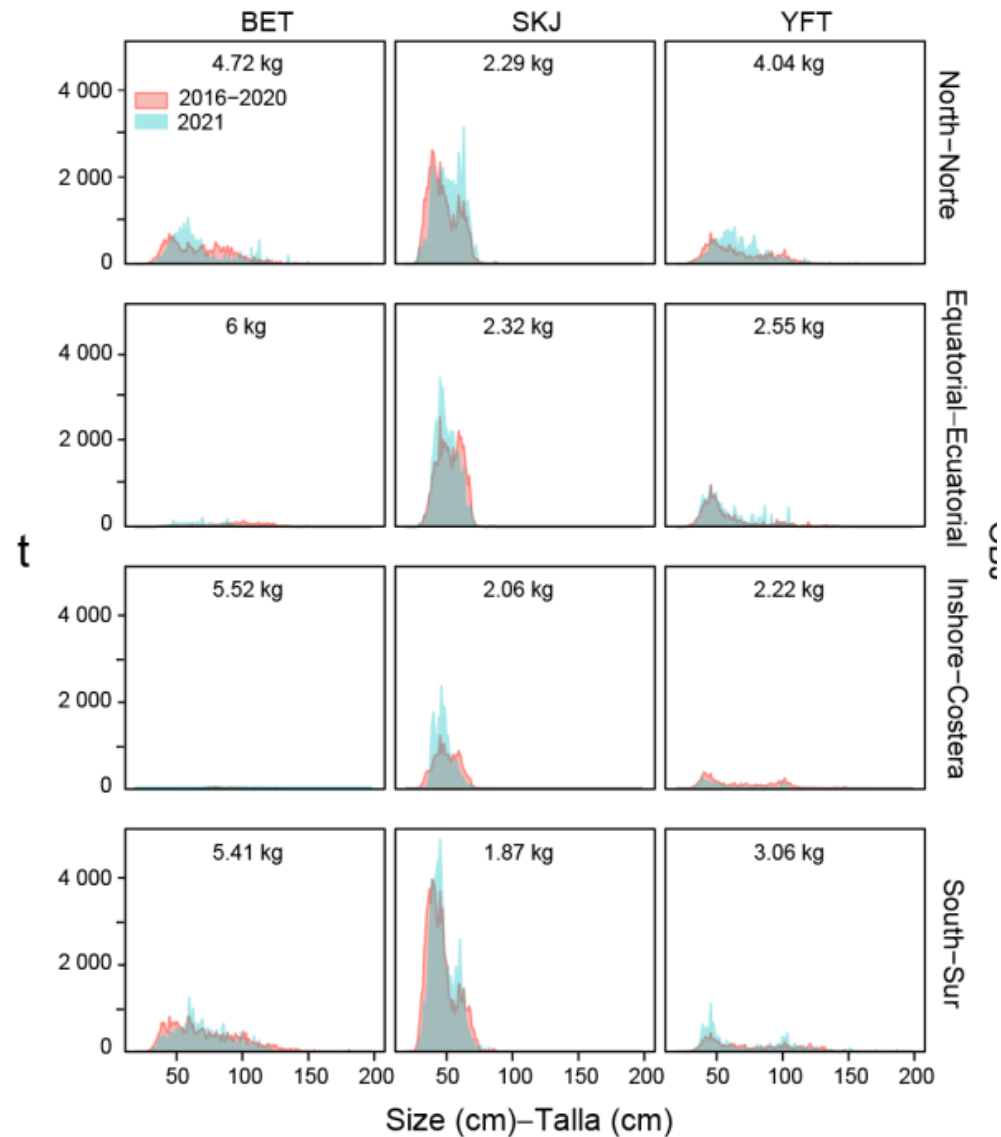
# Onboard technology – Tecnología a bordo



Ecosystem impacts – Impacto sobre el ecosistema  
(see/ver SAC-13-10)

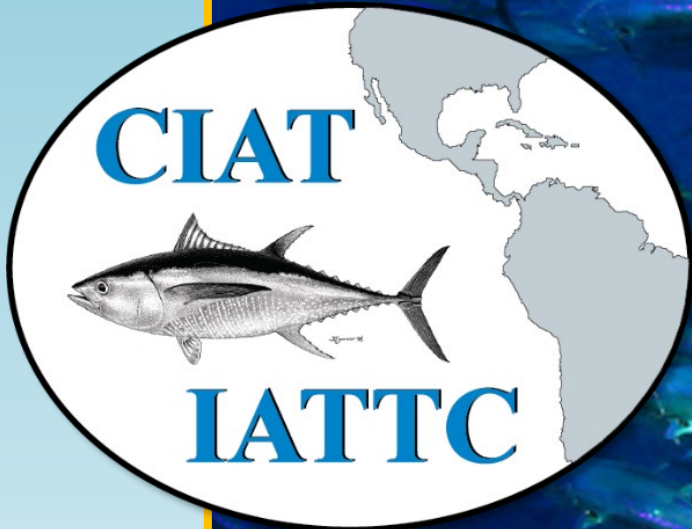
# Biology – Biología

# Size composition of tuna – Composición de tallas de atún



# Future prospects – Trabajo futuro

- Extend to include other indicators of interest: Buoy-abundance index (J.3.a), stranding events (M.5.b), etc.
- Incluir otros indicadores de interés: índices derivados de las boyas (J.3.a), cuantificación de varamientos (M.5.b), etc.
- Use fishers workshops for capacity building and collect near-real time information of fishery dynamics (started in 2020-2021)
- Usar los talleres de capitanes para mejorar las aptitudes de los pescadores pero a su vez, recolectar información de primera mano sobre las dinámicas de la pesquería (comenzado en 2020-2021)
- Support science/indicators-based decision making
- Promover decisiones de manejo apoyadas en ciencia e indicadores.
- IATTC staff recommends: to provide to the IATTC staff the historic raw buoy data received by original users.
- El personal de la CIAT recomienda: suministrar al personal de la CIAT los mismos datos históricos crudos que reciben los usuarios originales.



# Preguntas—Questions

