

Comisión Interamericana del Atún Tropical Inter-American Tropical Tuna Commission



Floating-object fishery indicators: a 2023 report

Indicadores de la pesquería con objetos-flotantes: un informe de 2023

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

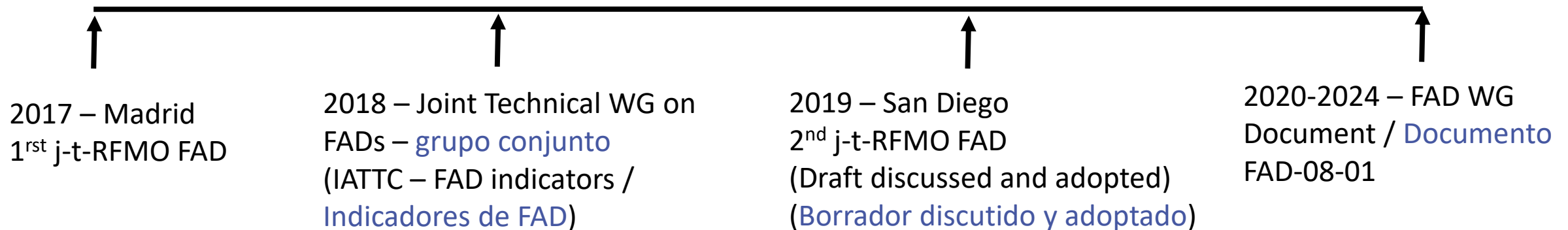
*jlopez@iattc.org

8ª Reunión del Grupo de Trabajo *Ad hoc* sobre plantados - 2024

8th Meeting of the *Ad Hoc* Working Group on FADs - 2024

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	Tecnologia
Ecosystem-Impact	2	Impacto-Ecosistema
Socio-Economico	3	Socio-Economico
Bio-Eco-Behavior	3	Bio-Eco- Comportamiento

Data - Datos

Five main datasets – Cinco bases de datos:

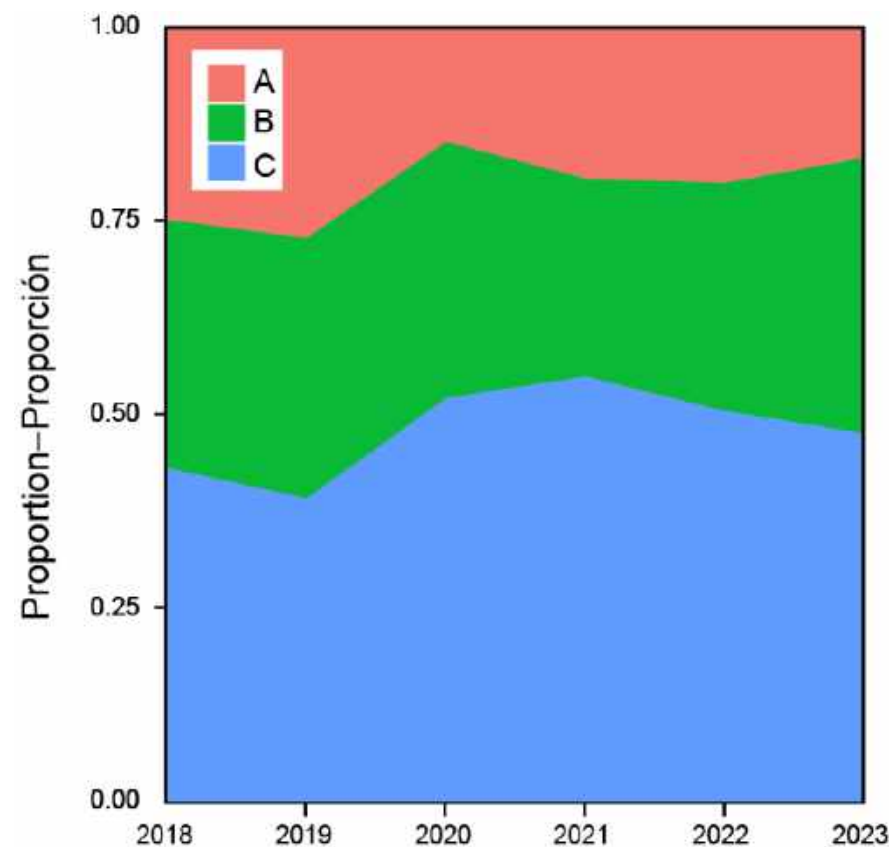
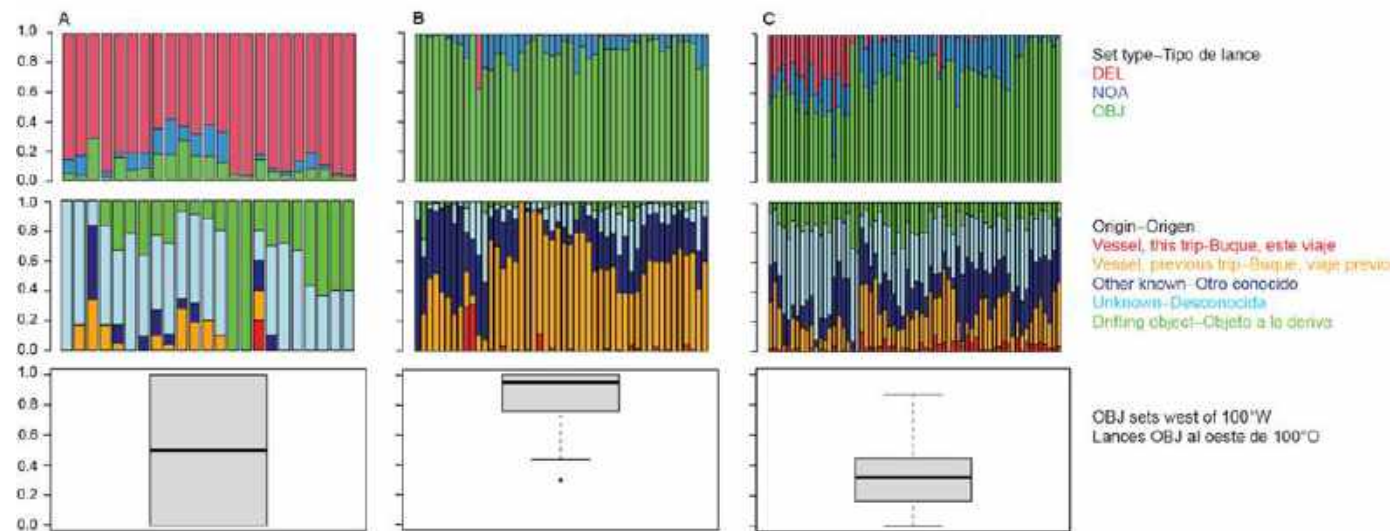
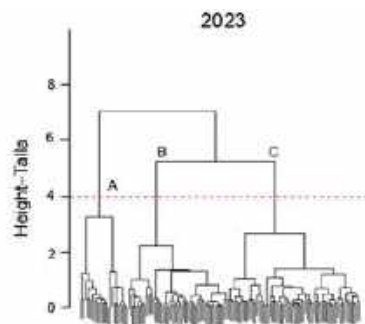
- a. 2018-2023 AIDCP observer data for Class-6 vessels [fleet behavior, activities, and technology].
a. Datos de observadores AIDCP 2018-2023 para buques de clase 6 [comportamiento de la flota, actividades sobre plantados y tecnología]
- b. Catch and effort data for all vessels (Classes 1-6) [catch and effort]
b. Datos de captura y esfuerzo para toda la flota (Clase 1-6) [captura y esfuerzo]
- c. Daily active buoy data for 162 vessels (Classes 1-6) reporting during 2022. 166 vessels during 2018-2021 [buoy-based indices]
c. Datos de boyas activas proporcionados por 162 buques de clase 1-6 durante 2022. 166 buques durante 2018-2021 [índices basados en boyas]
- d. 2022-2023 monthly remote deactivation and reactivation data for all vessels (Classes 1-6) [buoy indices]
d. Informes mensuales de desactivación y reactivación remota para toda la flota, 2022-2023 (Clase 1-6) [índices de boyas]
- e. 2020-2023 FAD form data for all vessels without observers (Class 1-5)[activities]
e. Formularios de plantados para los buques sin observadores (Clase 1-5) [actividades]

Fleet segments – Segmentos de la flota

A = > 100W + DEL and opportunistic OBJ sets (23)

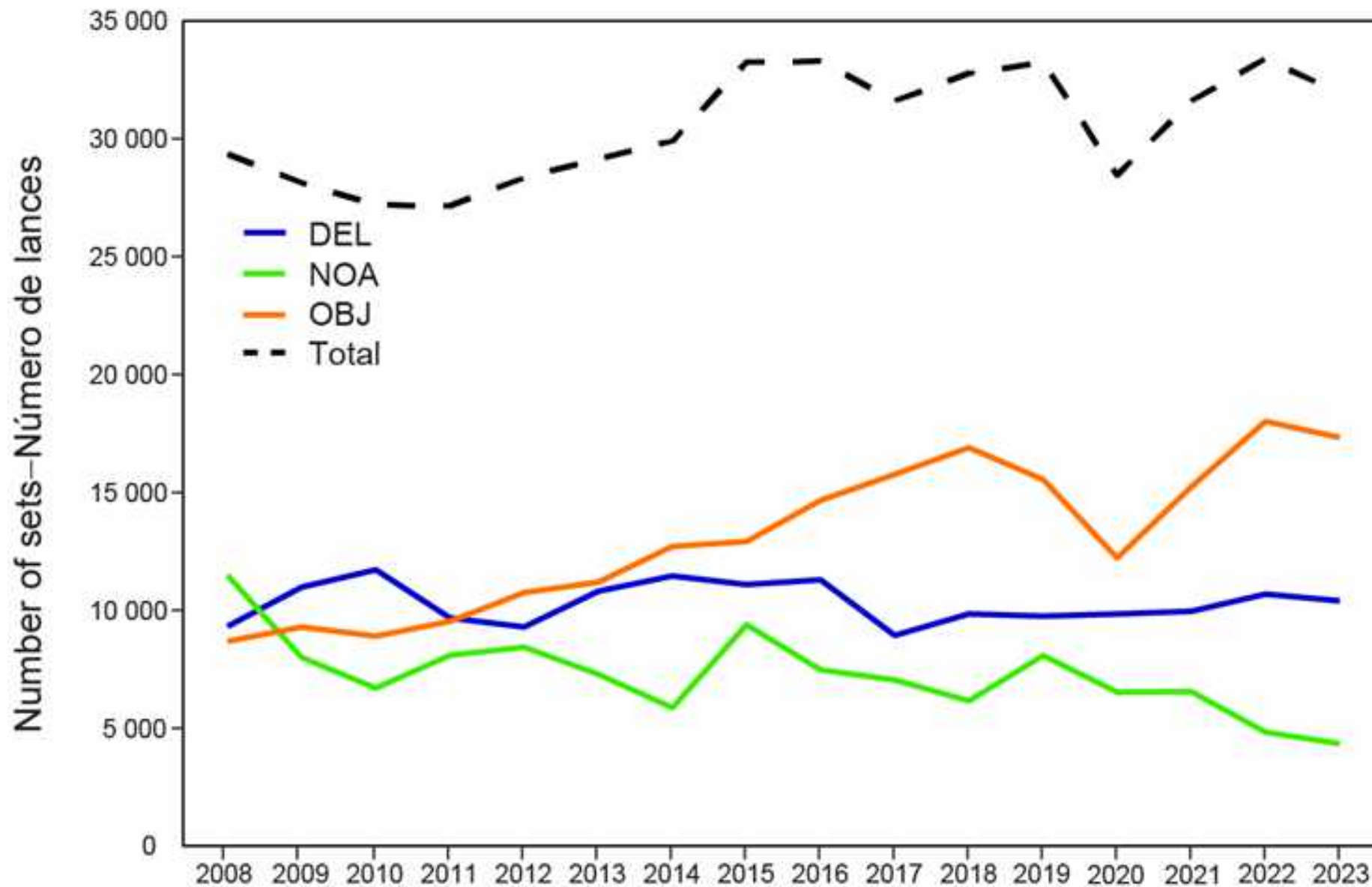
B = >100W + OBJ sets (monitored) (48)

C = <100W + mix of set types (64)

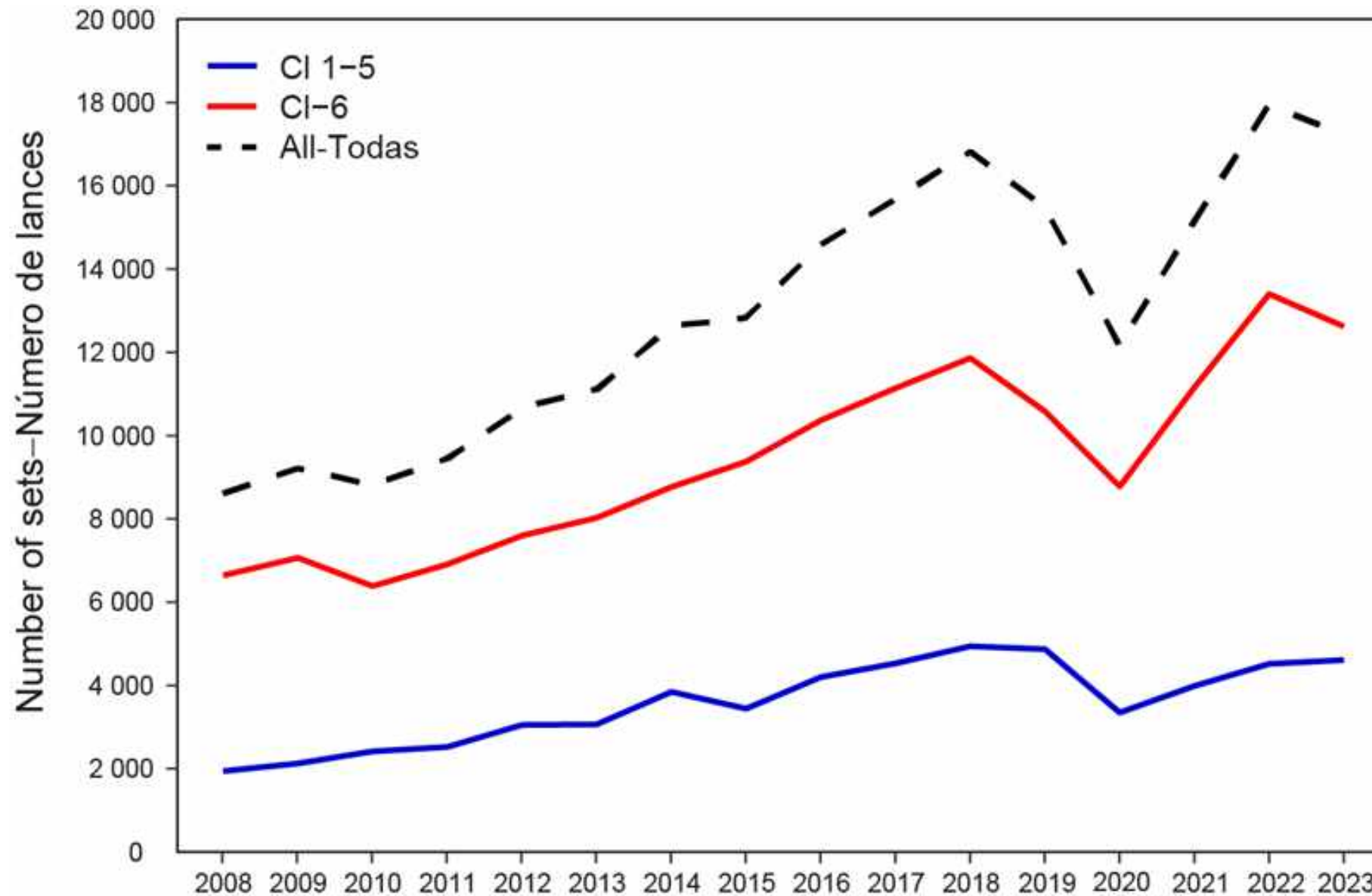


Catch and effort - Captura y esfuerzo

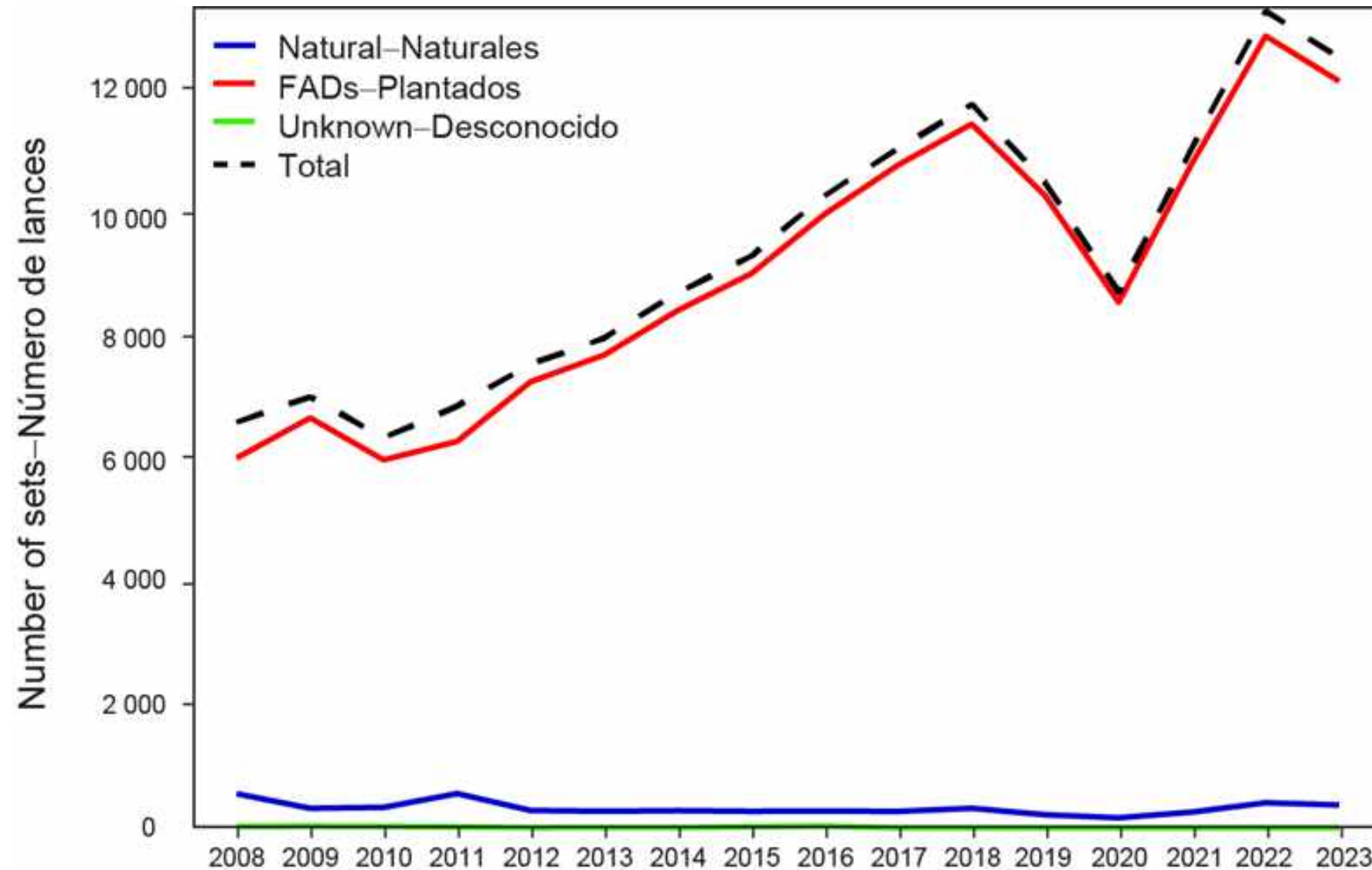
Total number of sets by set type – Numero total de lances por tipo de lance



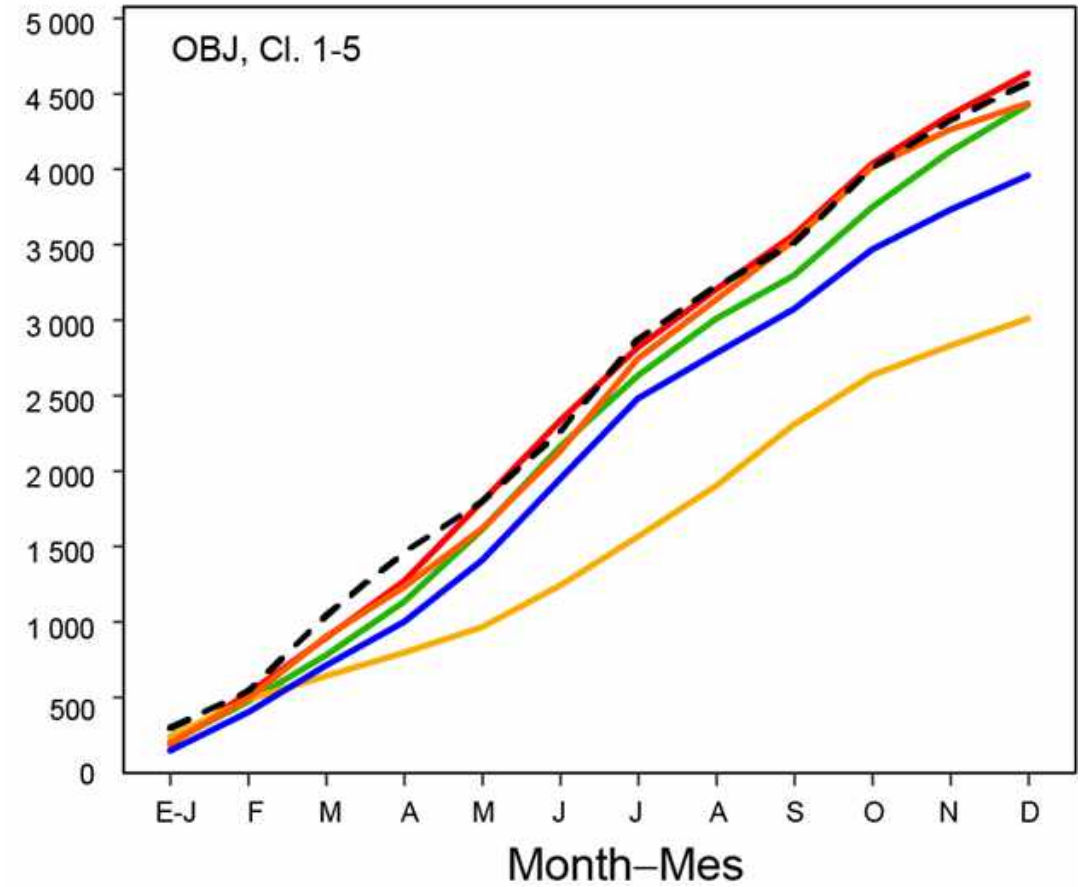
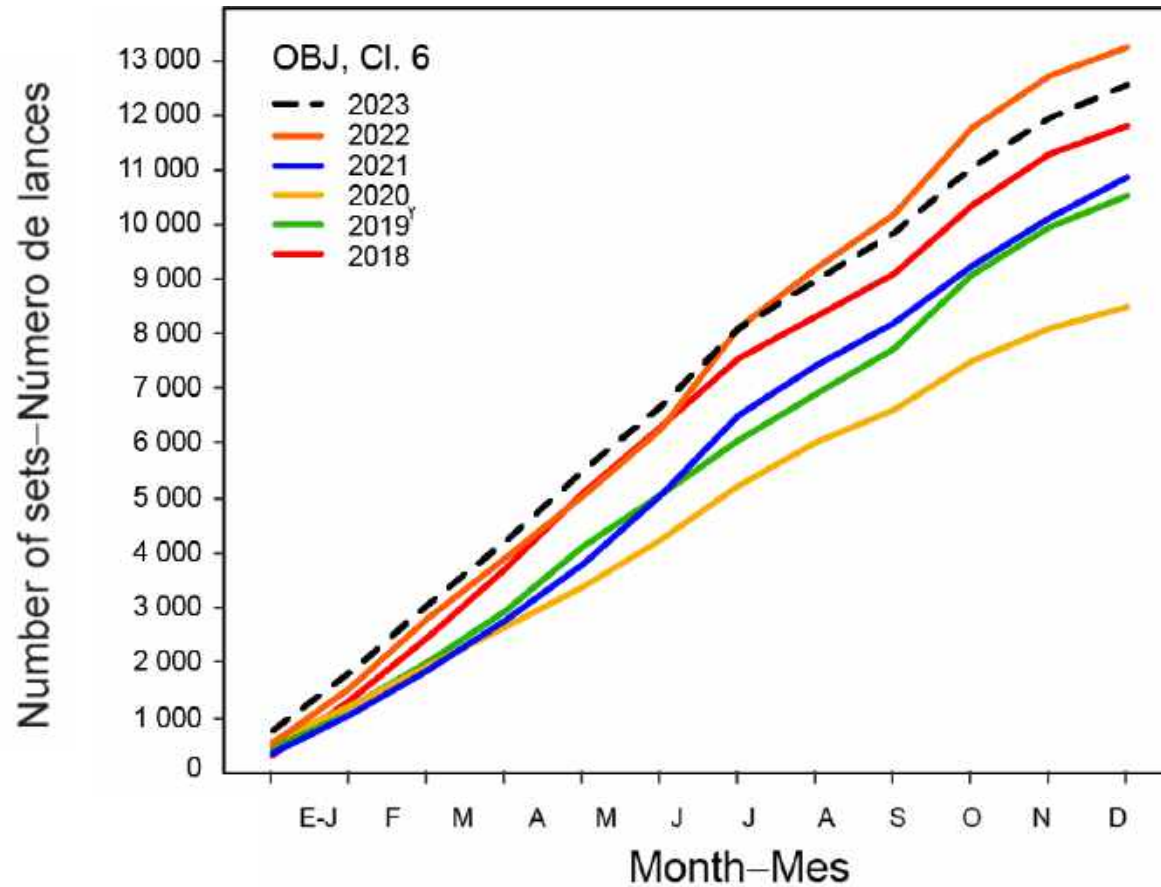
Number of sets on floating object by Class-size vessel – Numero de lances sobre OBJ por clase



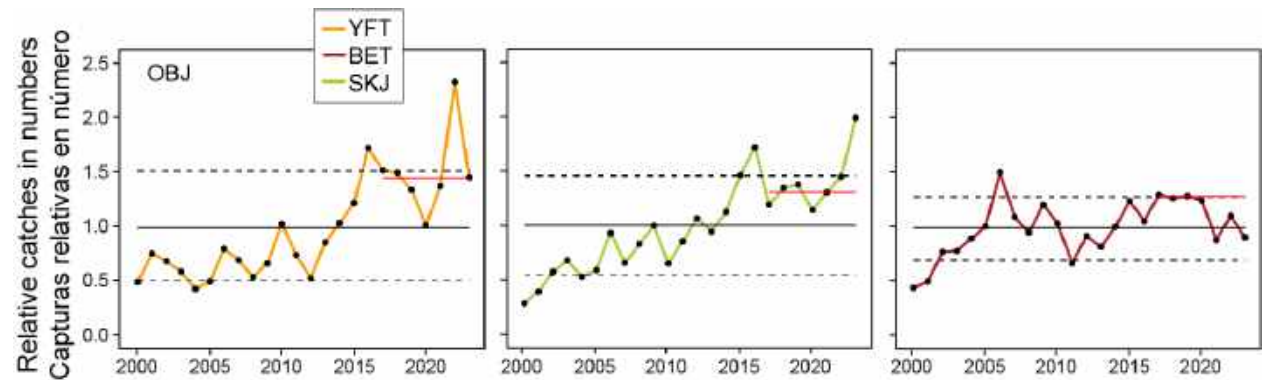
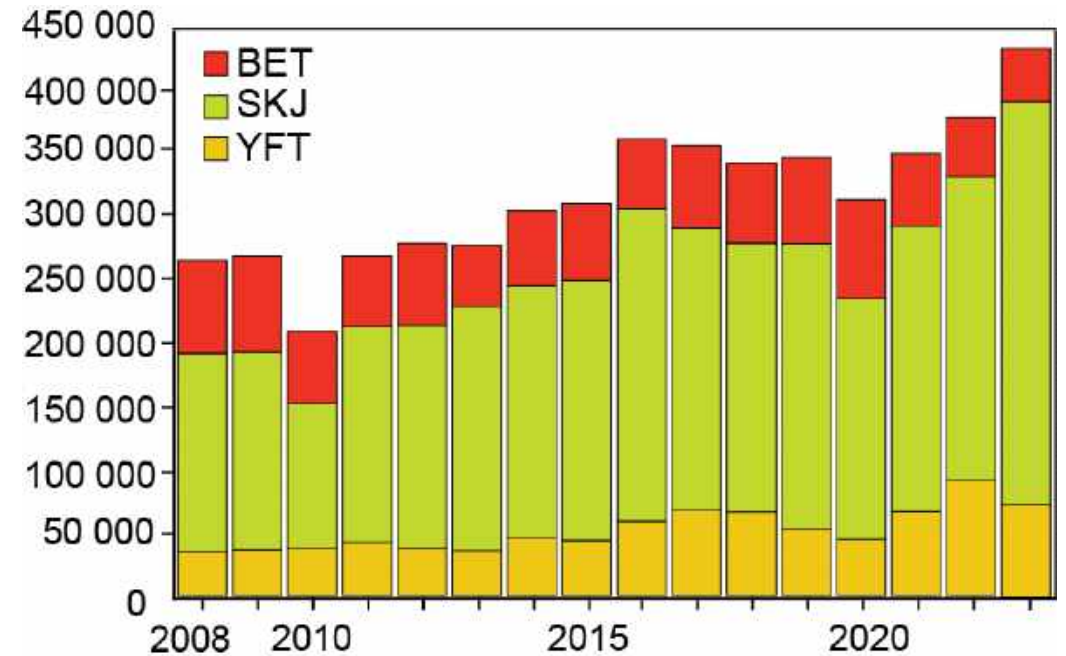
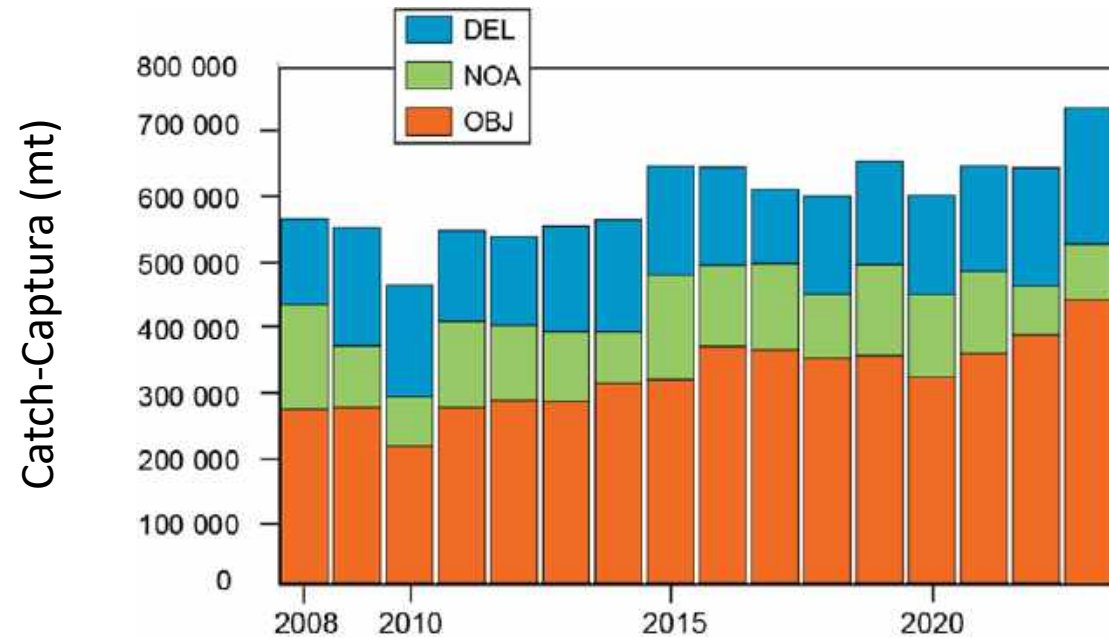
Sets by type of floating object made by Class-6 vessels – Lances sobre diferentes tipo de objeto para los buques de clase 6



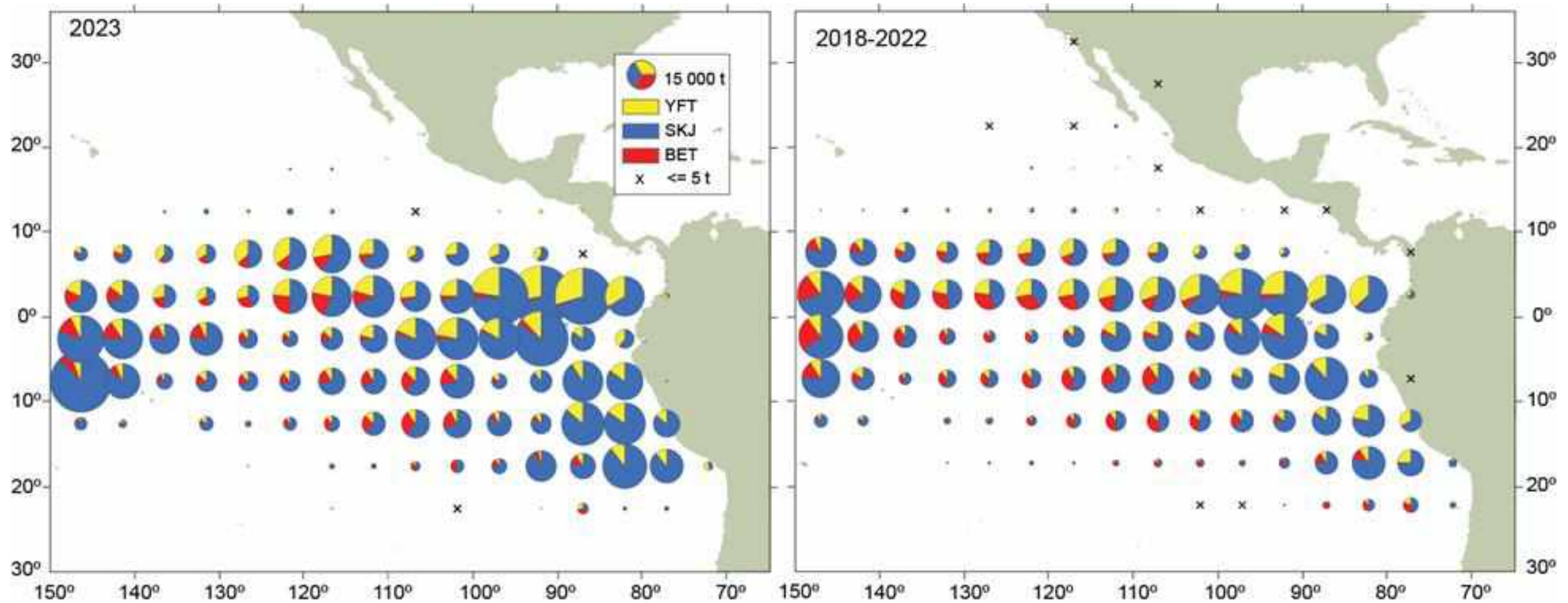
Cumulative sets by Class-size vessel and set type – Lances acumulados para las diferentes clases de buques y tipo de lance



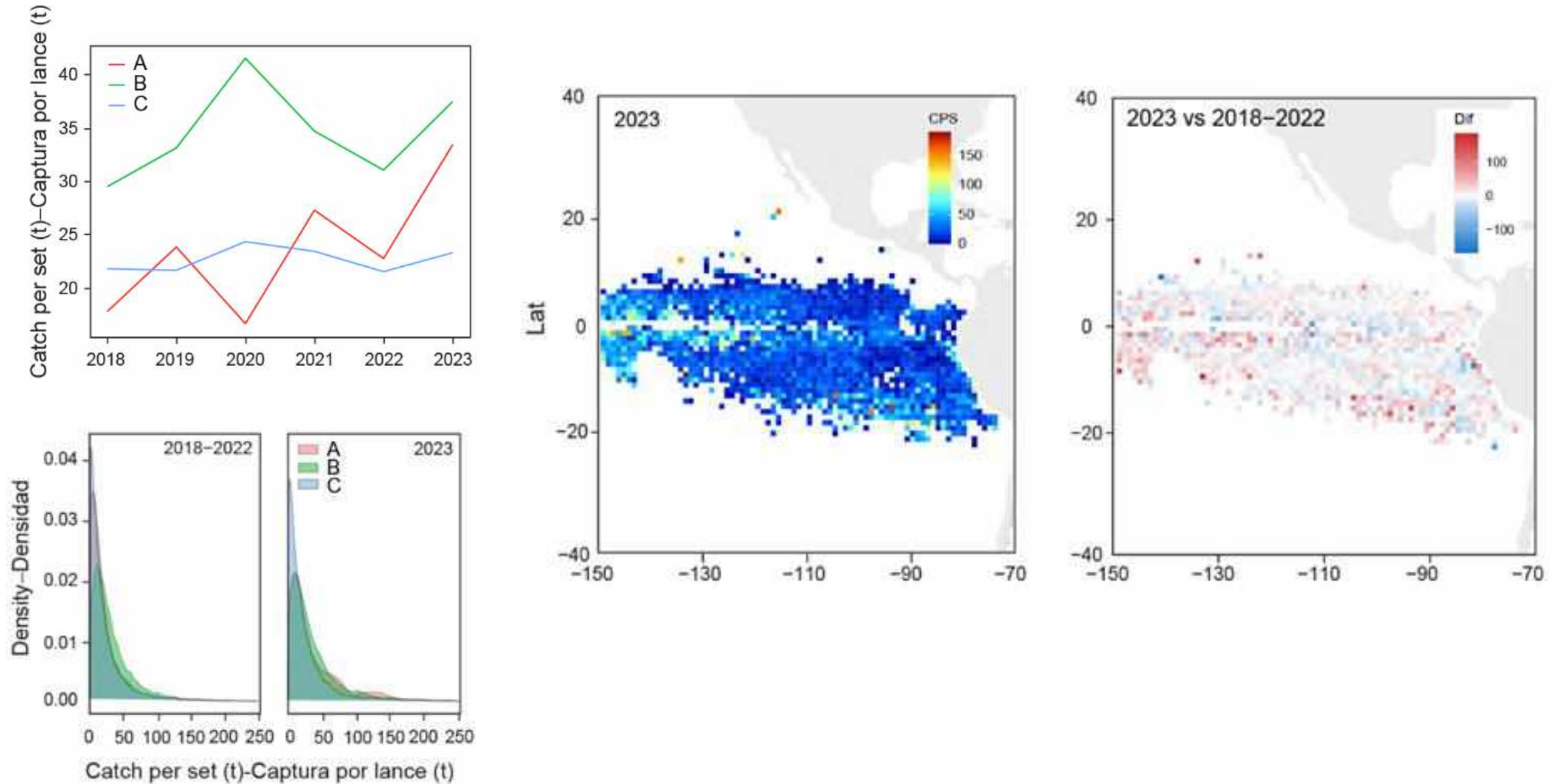
Catch by set type (and species) – Captura por tipo de lance (y especie)



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
2018–2022	25	6393	24647	3900	7078	2816	5	3	47444	10689	144	657
2023	10	7070	26431	3928	8134	3316	7	11	51290	12294	135	665

Year	Deployments		Encounters		Sets	
	Vessel	Trip	Vessel	Trip	Vessel	Trip
2018–2022	171.4	37.5	329.9	72.3	74.3	16.3
2023	195.8	39.7	379.9	77.1	91.1	18.5

Year	Cluster	Deployments		Encounters		Sets	
		Vessel	Trip	Vessel	Trip	Vessel	Trip
2018–2022	A	4.4	1.3	43.4	12.9	24.4	7.2
	B	403.7	92.1	626.1	142.8	102.4	23.4
	C	97.4	18.6	269.2	51.5	78.9	15.1
2023	A	3.1	0.8	29.7	7.9	15.1	4.0
	B	413.6	83.4	645.5	130.2	111.5	22.5
	C	101.7	19.1	306.6	57.7	103.1	19.4

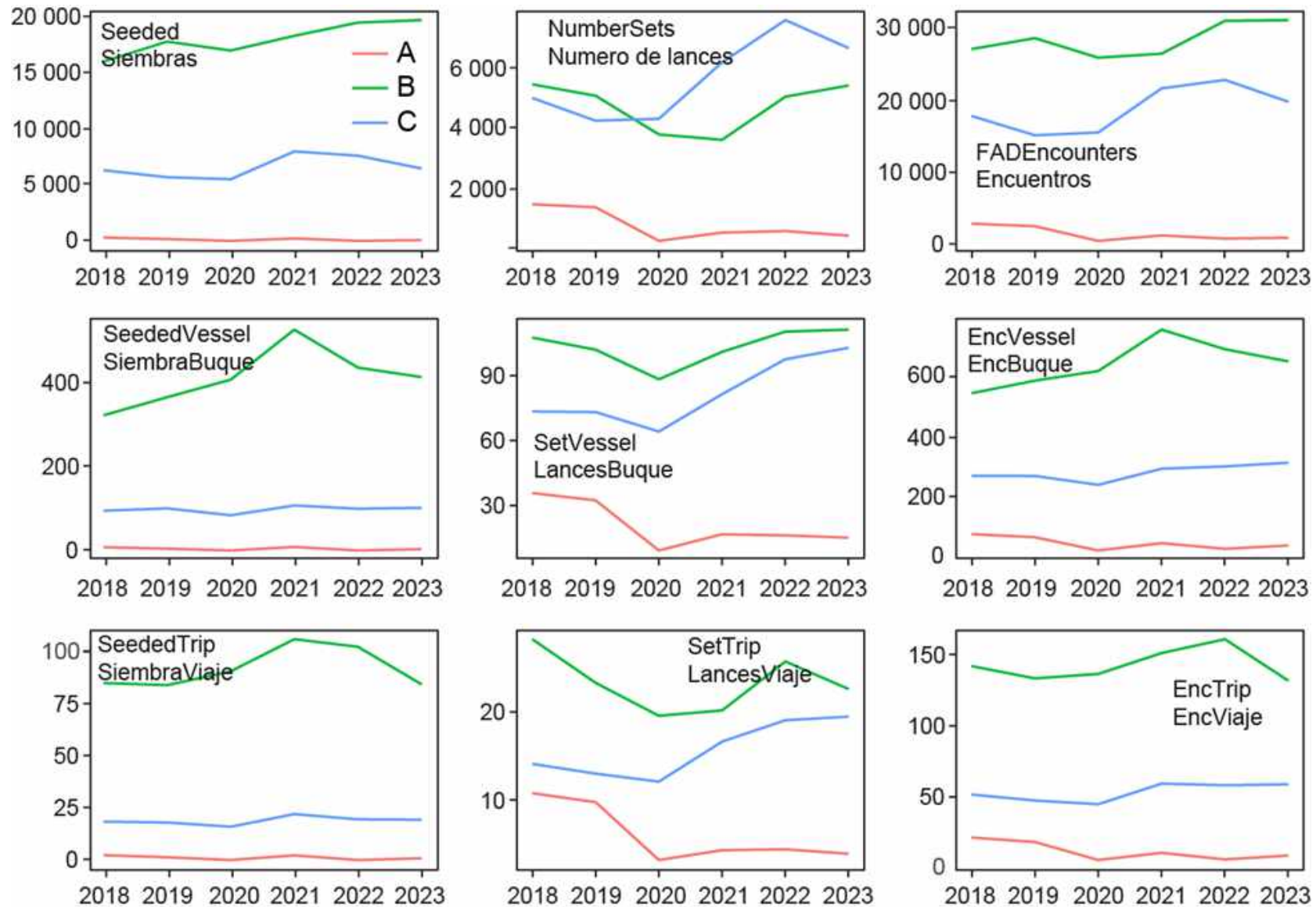
General OBJ activity table Class 1-5 – Tabla de actividad general sobre OBJ Clase 1-5

Only class 1-5 vessels– Solo buques clase 1-5

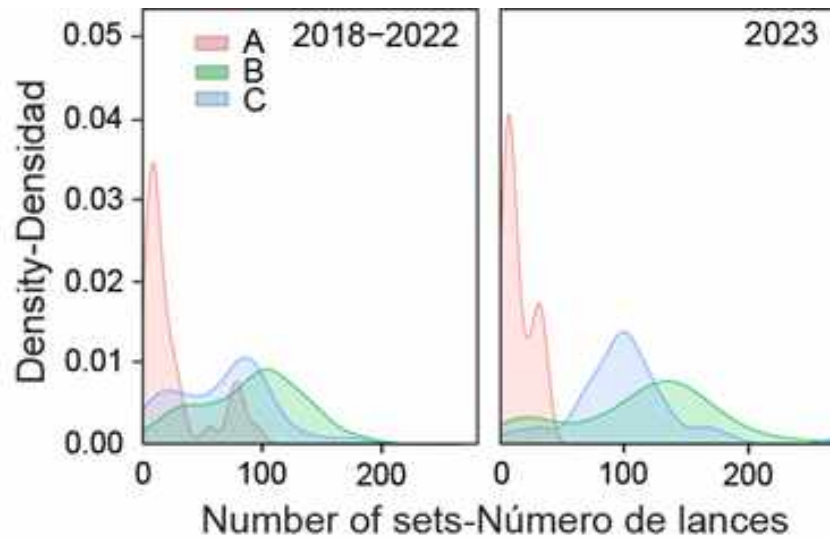
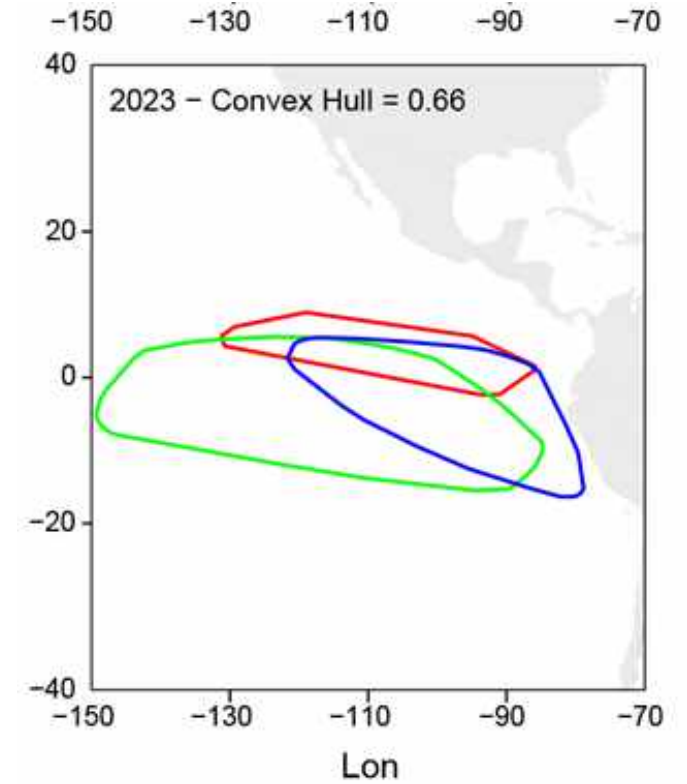
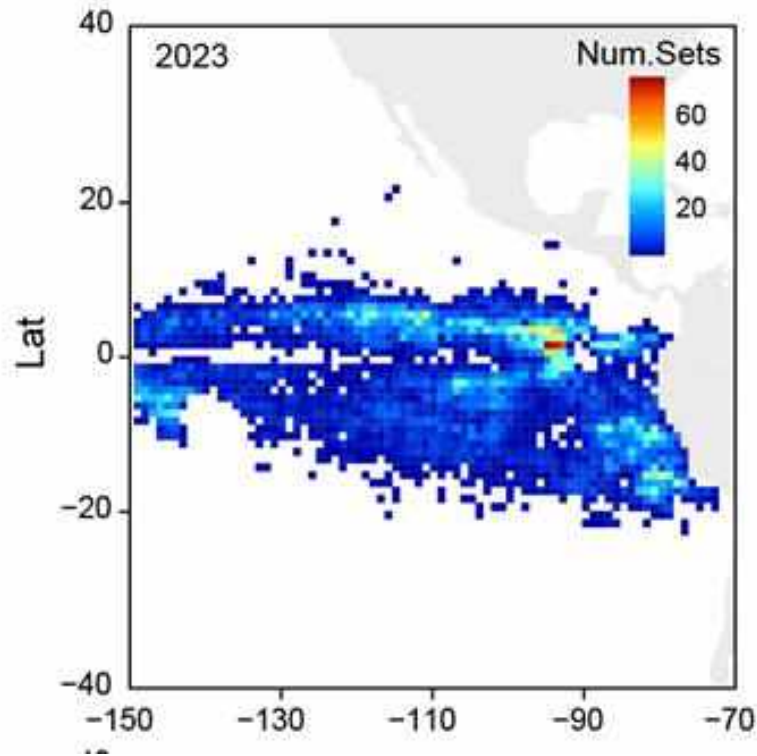
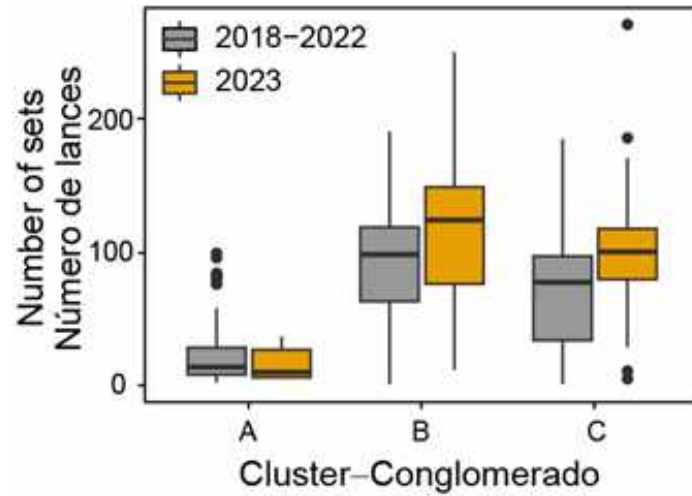
Year	Dep	Enc	Sets	Ves	Trips
2020–2022	120	3904	2725	32	181
2023	125	3918	2689	28	165

Year	Deployments		Encounters		Sets	
	Vessel	Trip	Vessel	Trip	Vessel	Trip
2020–2022	3.4	0.6	123.1	22.3	84.9	15.6
2023	6	0.8	151.3	24.4	97.2	16.4

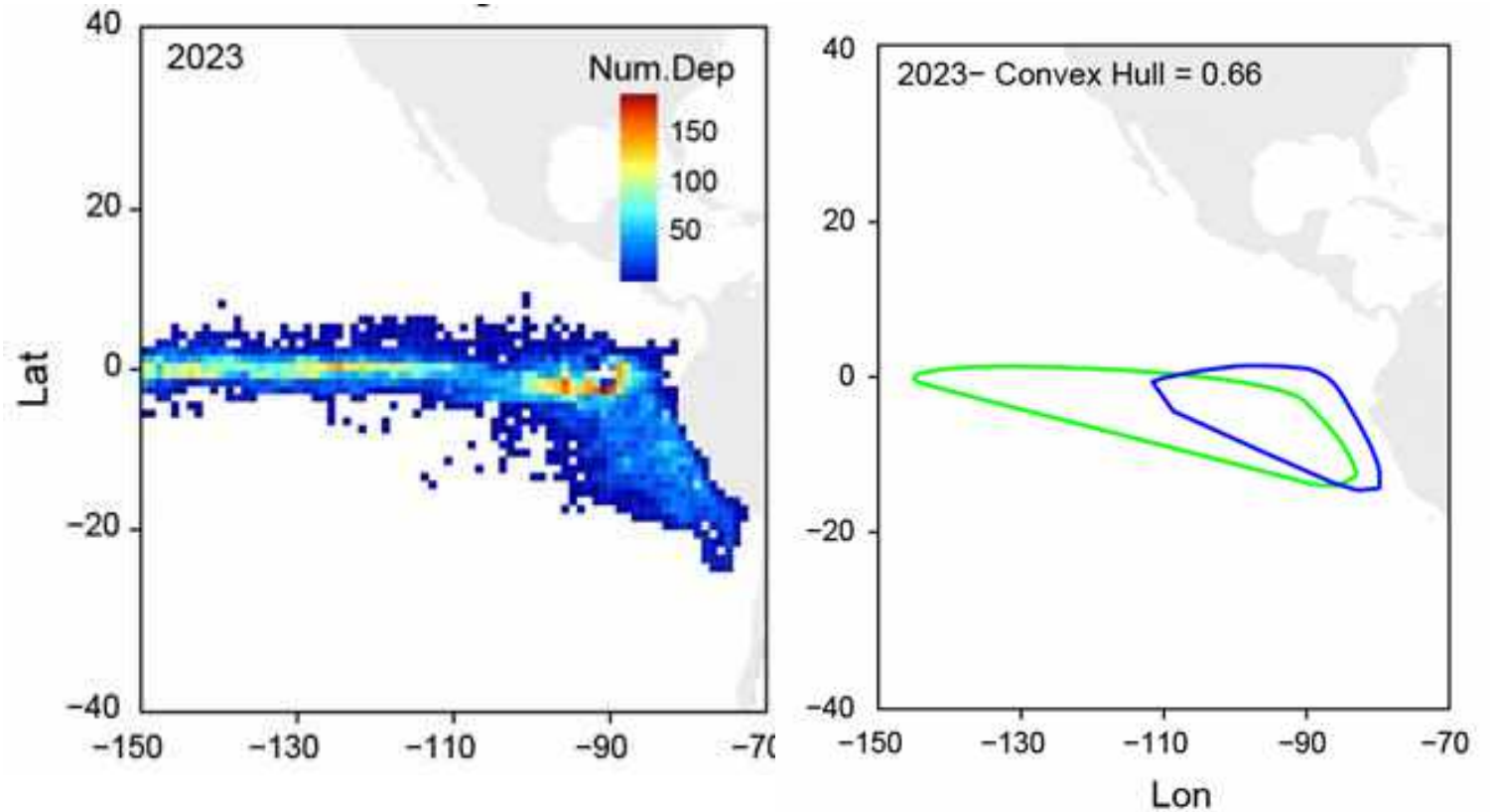
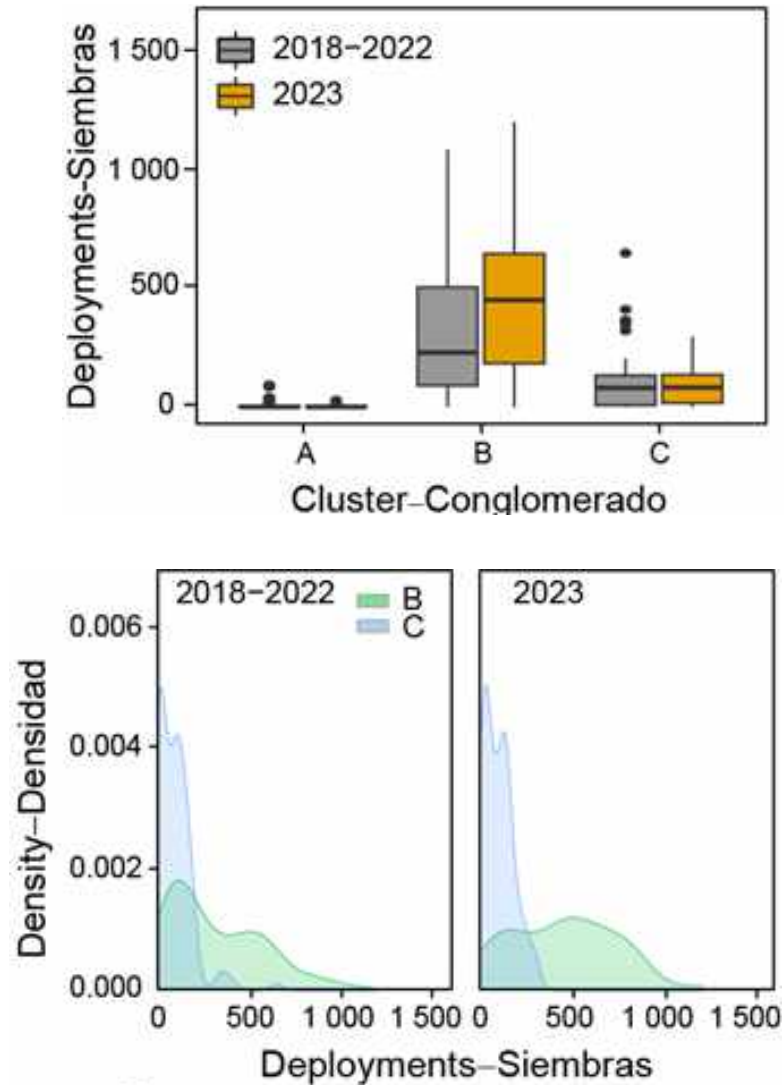
General OBJ activity evolution – Evolución de actividad general sobre OBJ



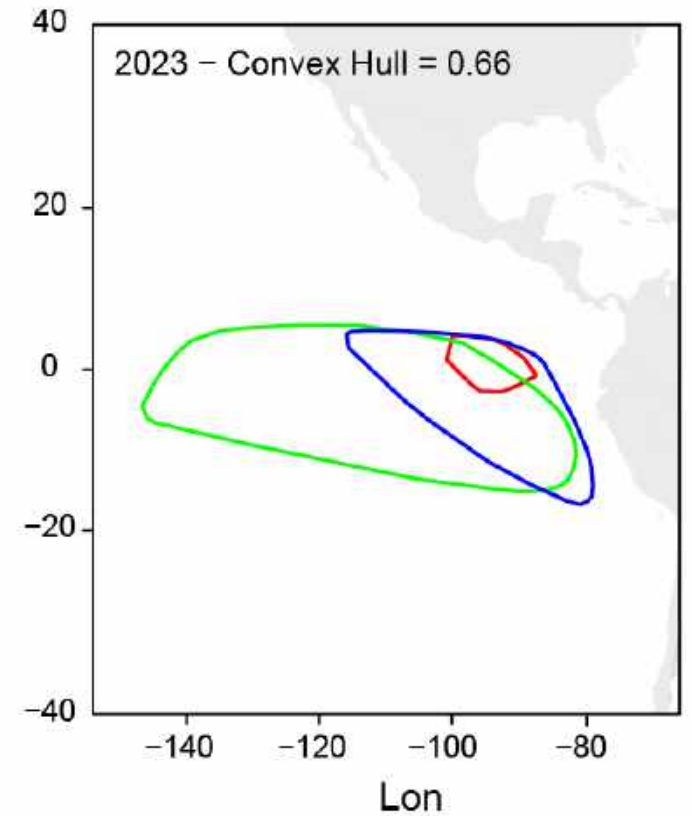
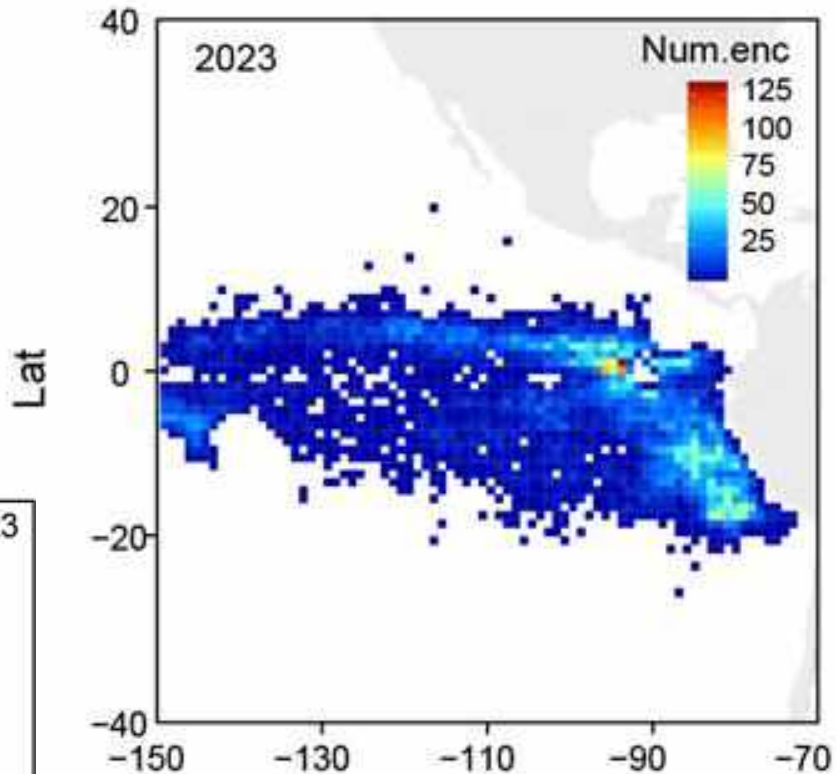
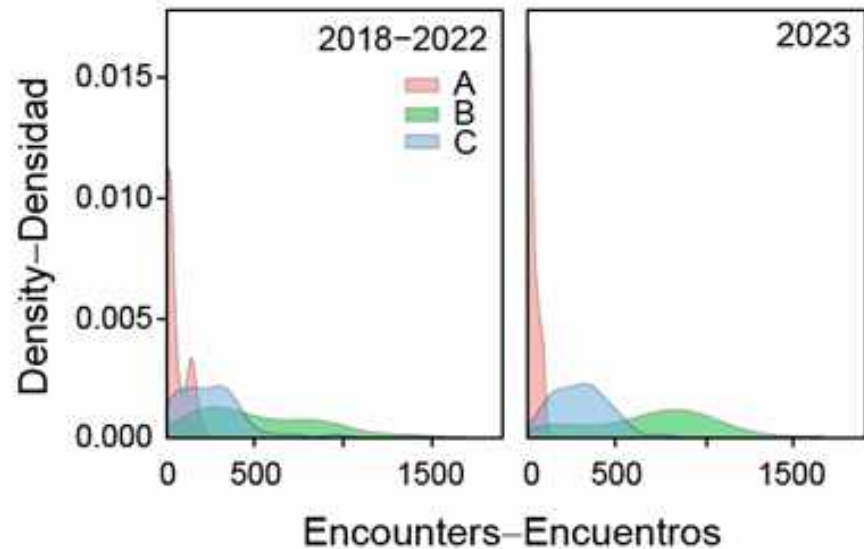
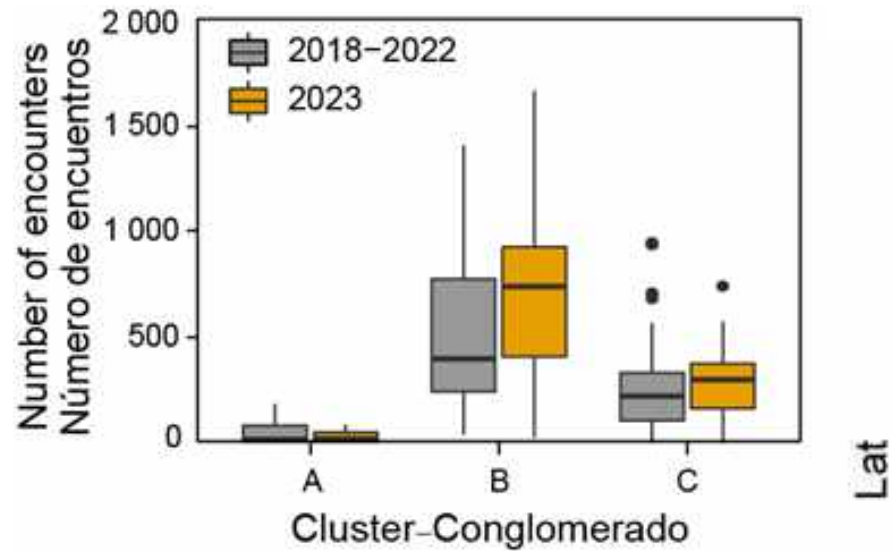
OBJ sets – Lances sobre OBJ



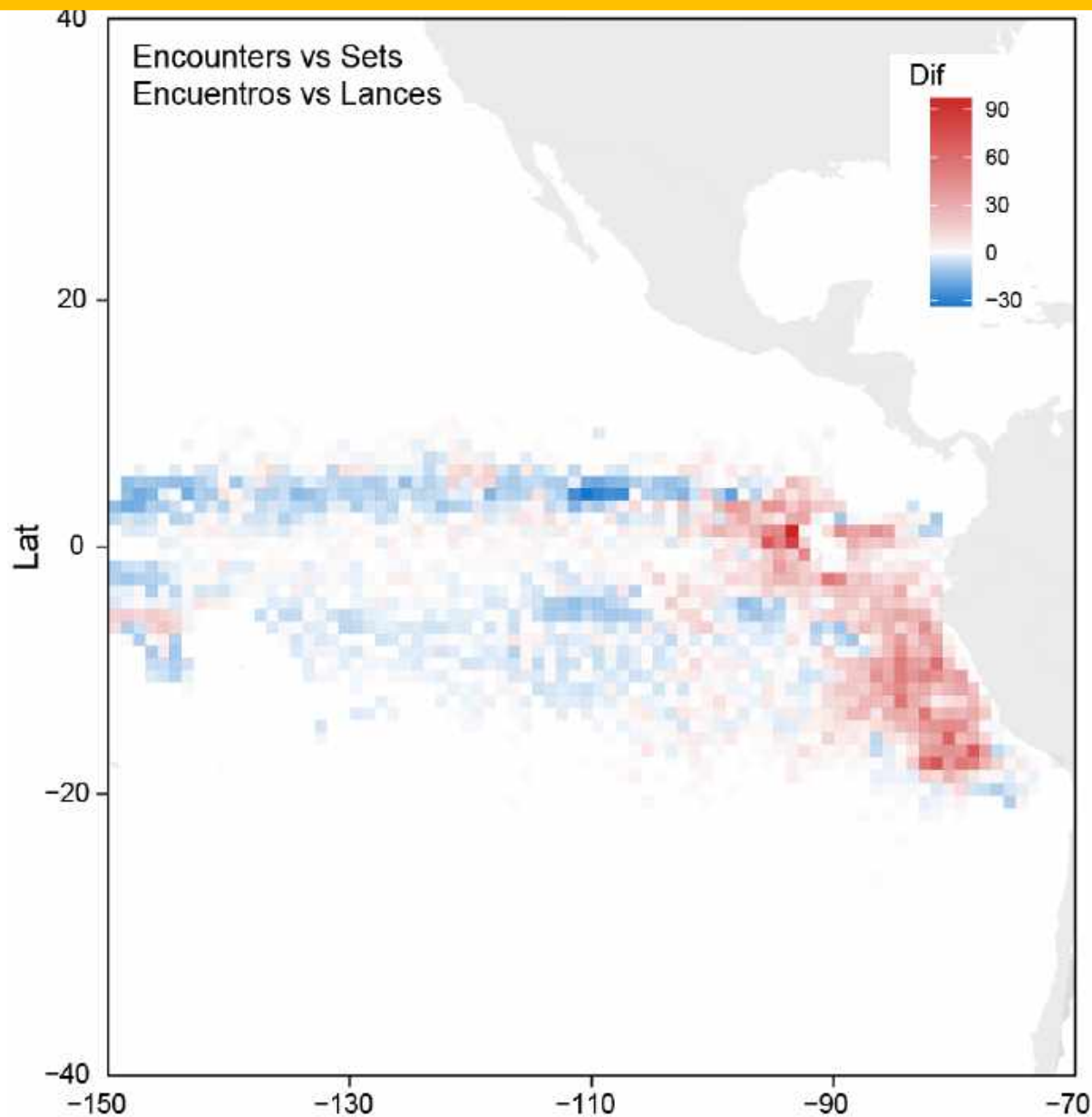
Deployments – Plantaciones



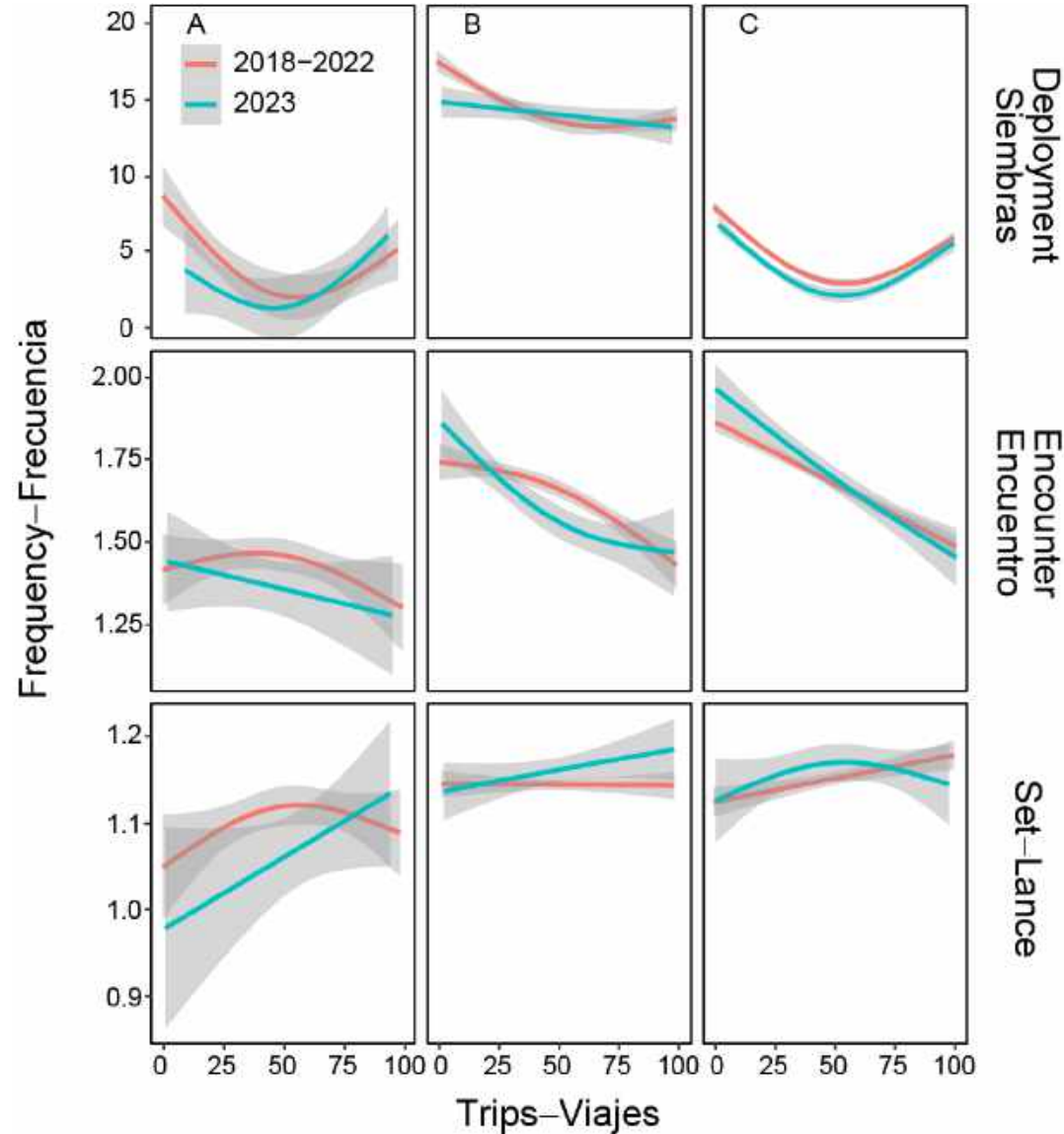
Encounters – Interacciones



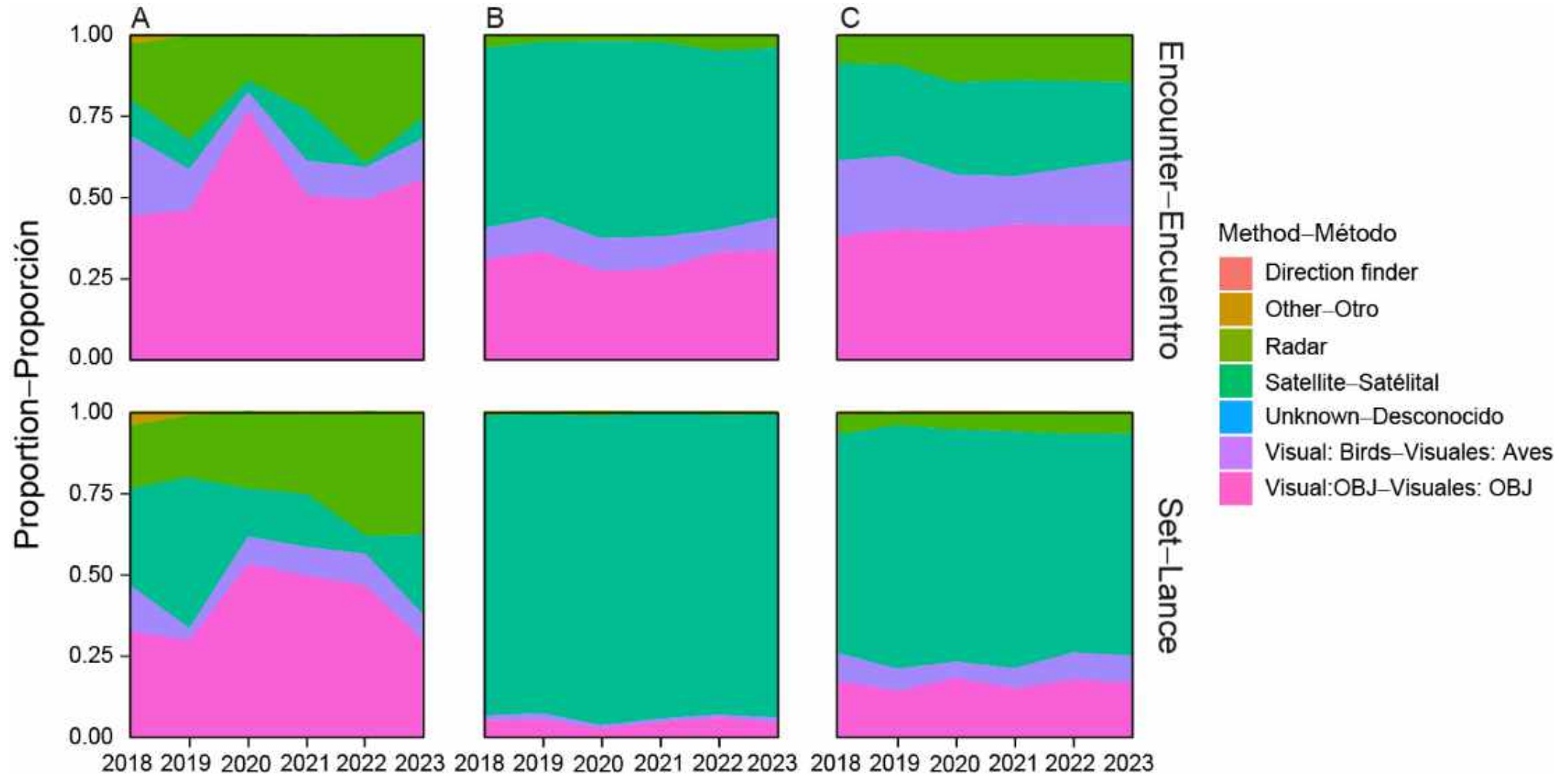
Encounters vs Sets – Interacciones vs Lances



Activities within the trip – Actividades durante el crucero



OBJ Location method – Método de localización de OBJ

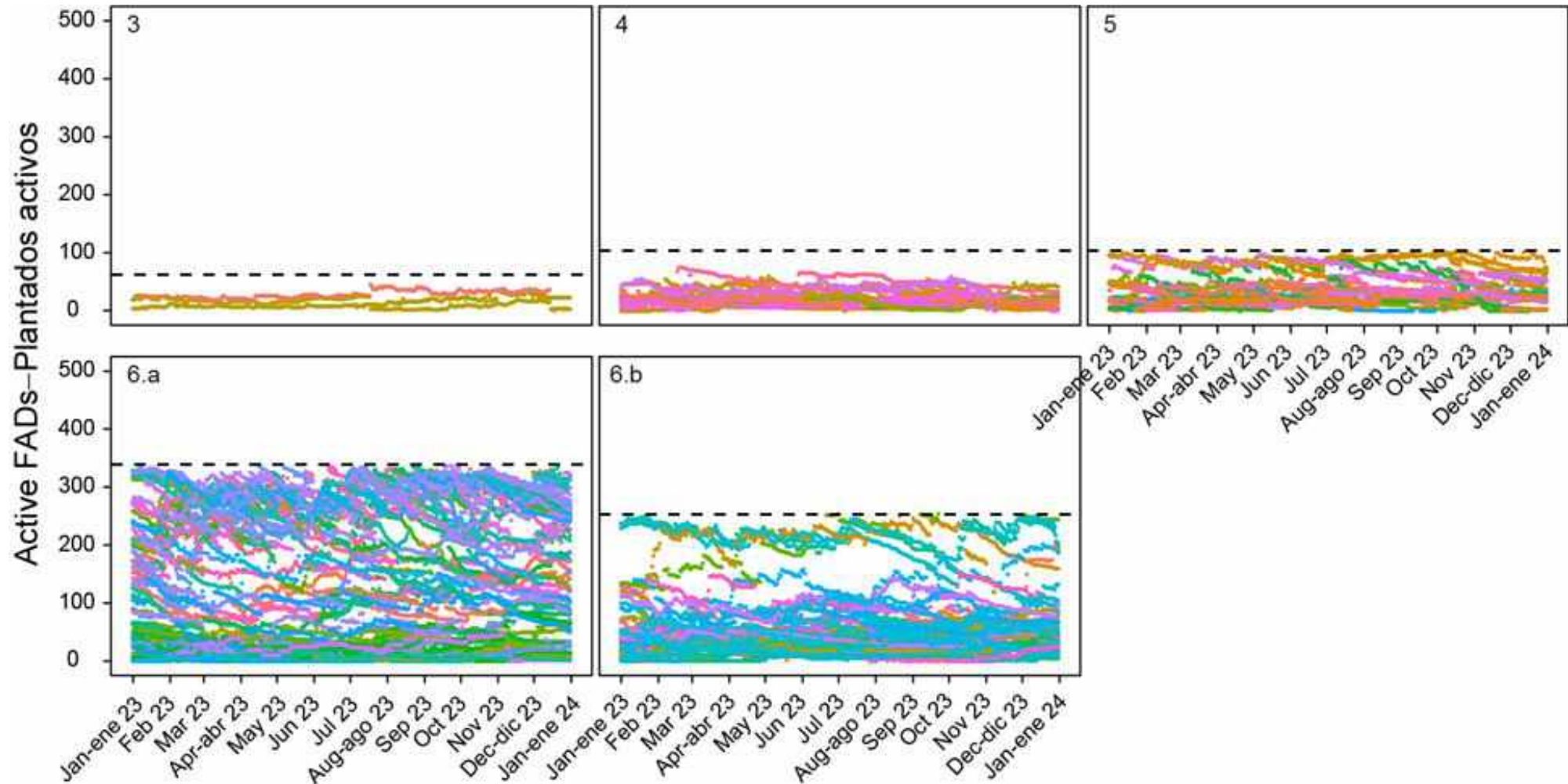


Buoy-based – Basados en boyas

Daily active FADs – Plantados activos diarios

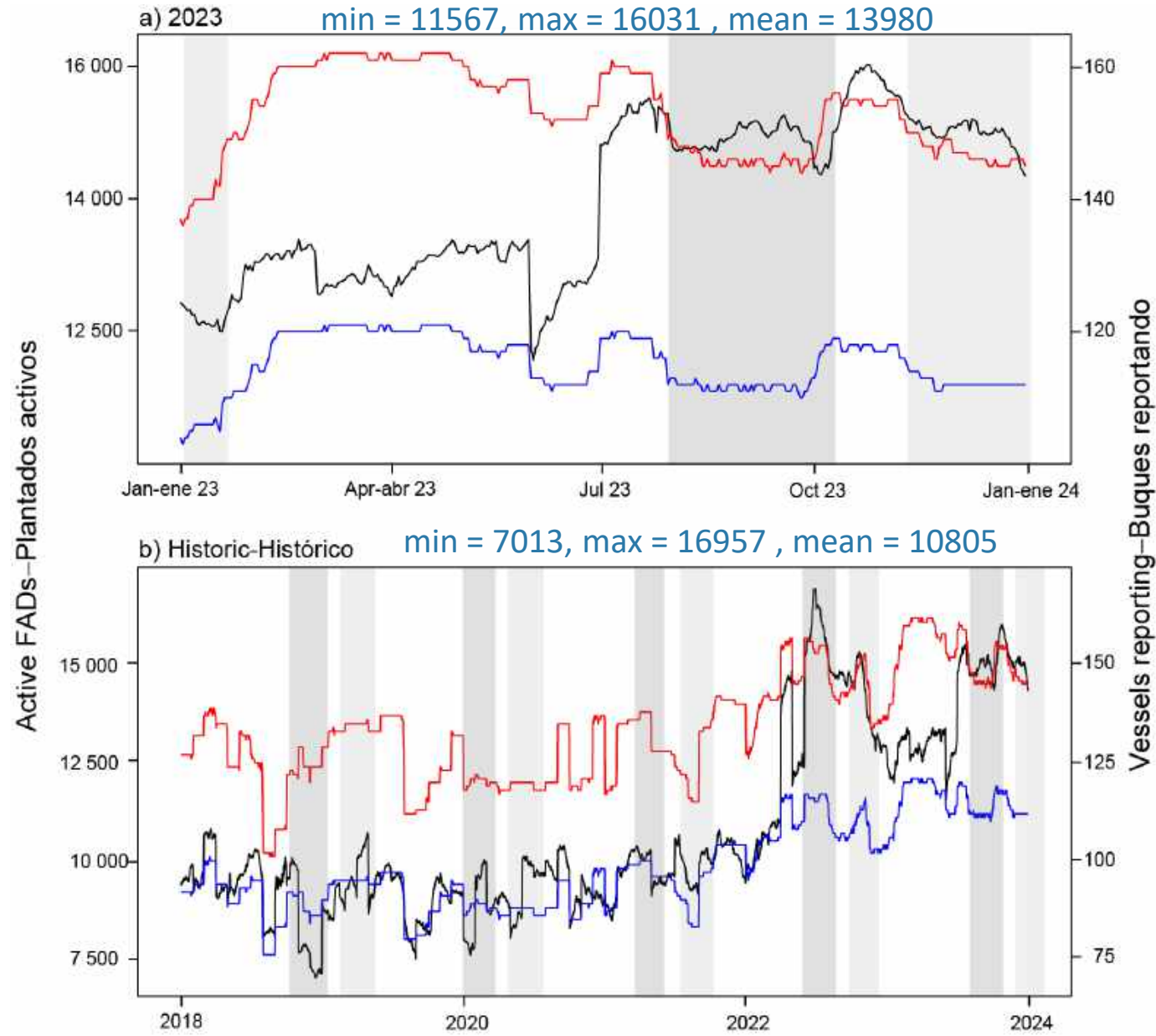
Res. C-21-04

(166 buques-vessels)

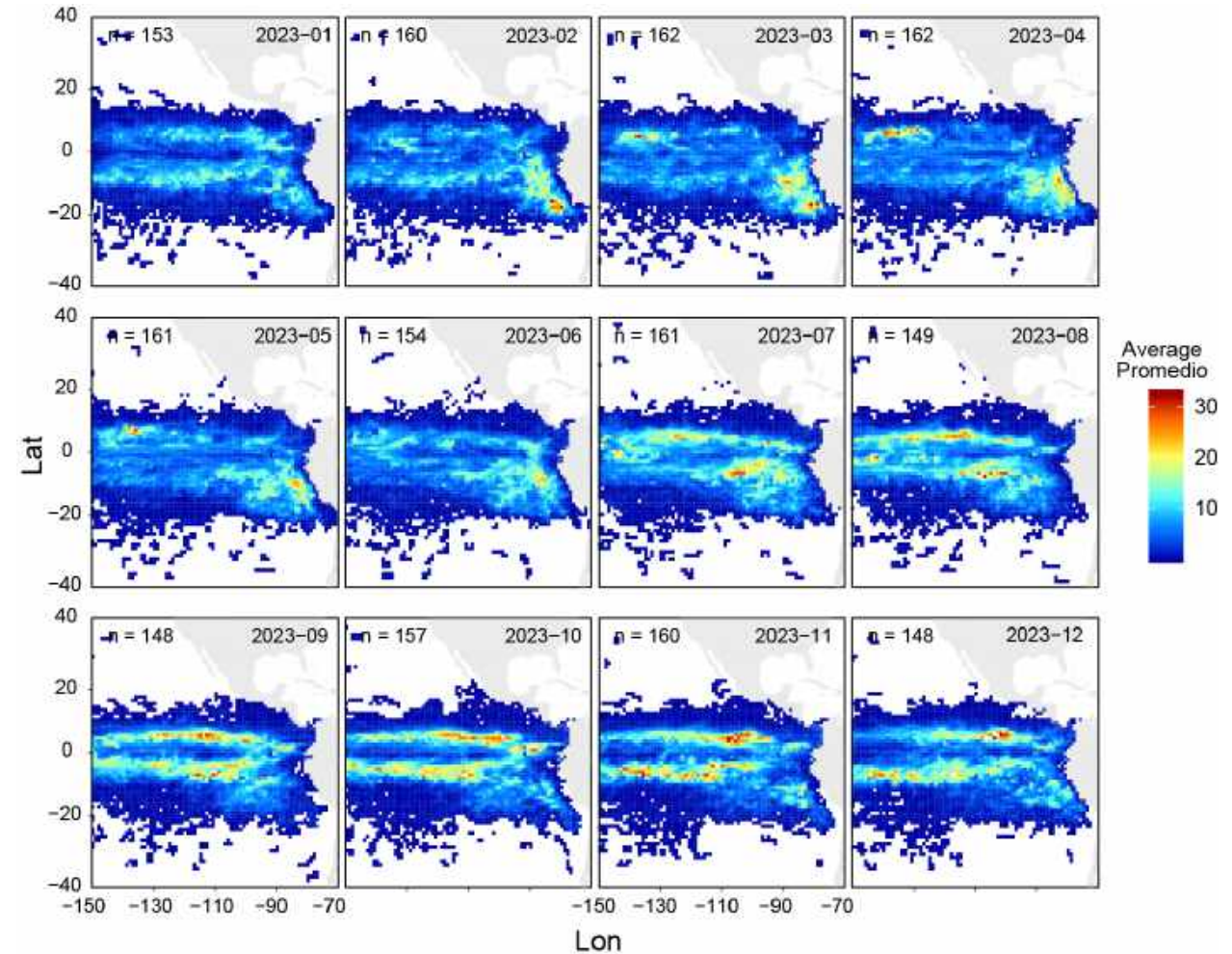
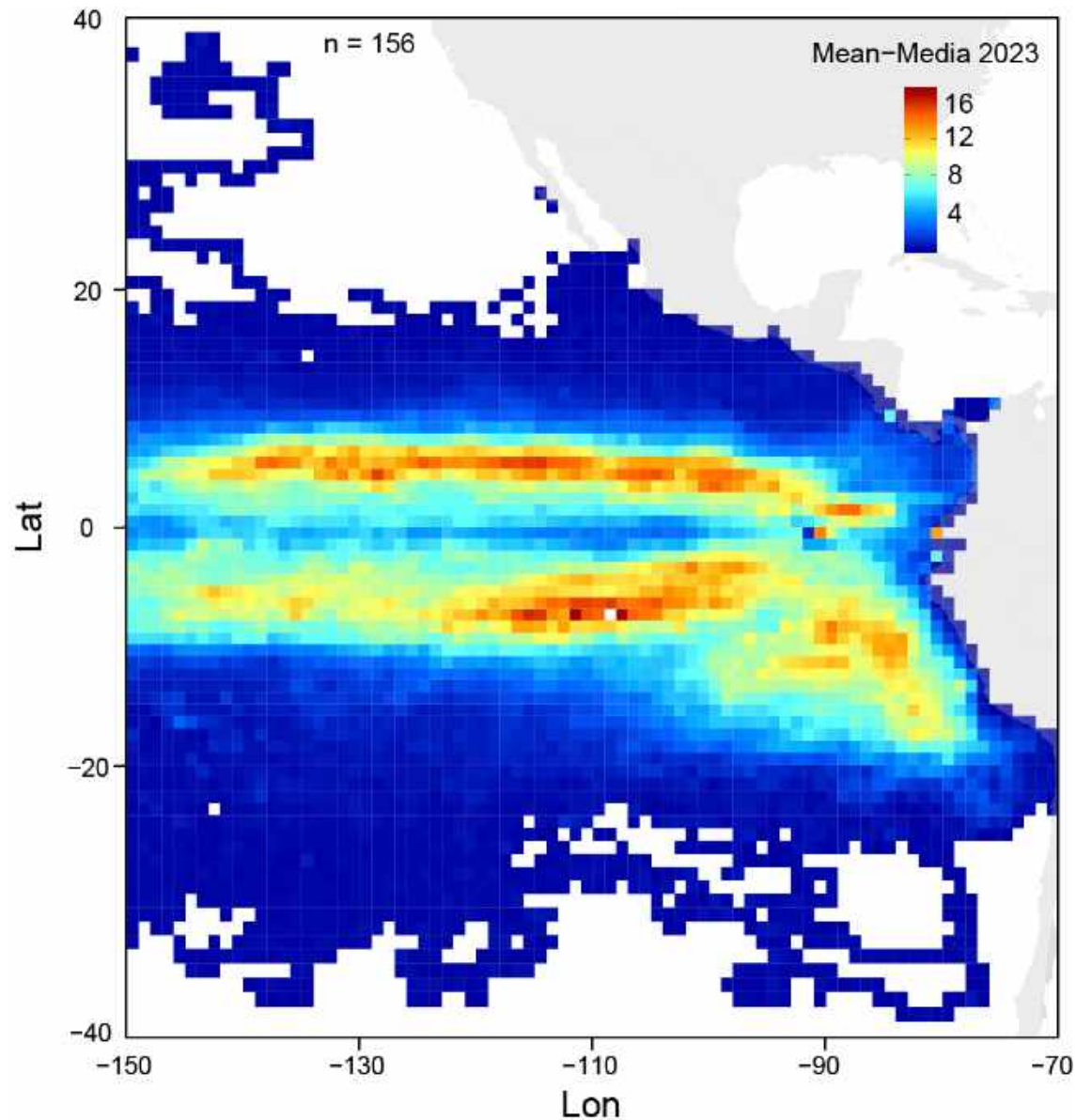


Daily total active buoys – Boyas activas diarias

162 vessels-buques
(124 Class 6
38 Class 1-5)



Active FADs densities – Densidades de plantados activos



148-162 vessels-buques
11842-15376 FADs-DCPs

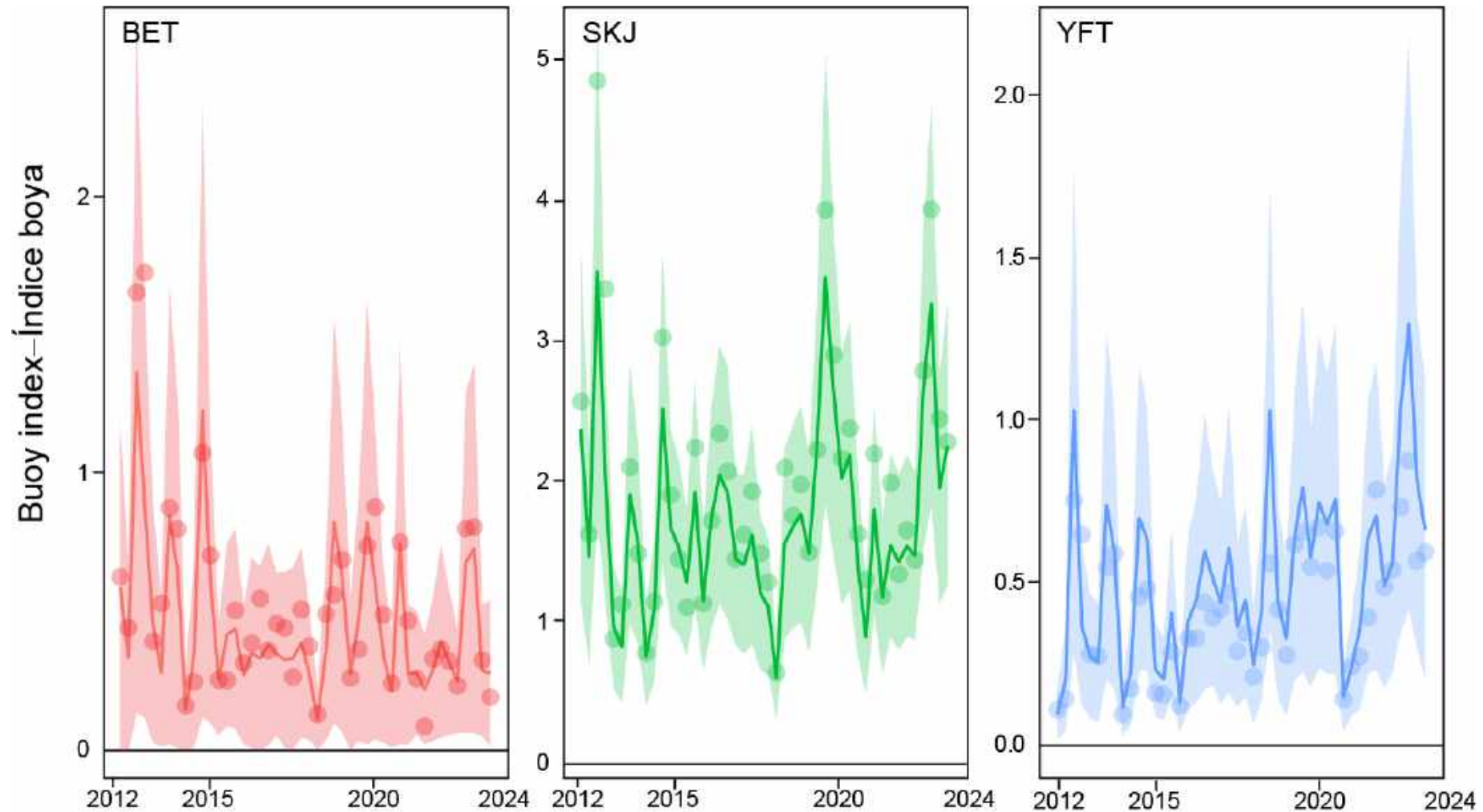
FAD reactivation/deactivation – Reactivación/desactivación de Plantados

81 buques-vessels (11 clases-class 1-5, 70 clase-class 6)
786 ficheros-files

Type	Reason	2023		2022	
		No. records	%	No. records	%
Deactivation	Beaching	106	0.4%	29	0.7%
	FAD outside the areas (par. 20; c-21-04)	6268	26.6%	1152	29.3%
	Other	2626	11.1%	485	12.3%
	Signal loss	7208	30.6%	1455	37.0%
	Stolen FAD	4781	20.3%	545	13.9%
	Temporarily during closure periods	488	2.1%	24	0.6%
	Transferred ownership	2081	8.8%	241	6.1%

Type	Reason	2023		2022	
		No. records	%	No. records	%
Reactivation	After a temporary deactivation during the closure period	243	0.7%	46	8.2%
	Other	1530	22.9%	367	65.2%
	Recovery of a signal loss	2525	37.8%	150	26.6%
	Transfer of ownership	2388	35.7%	46	8.2%

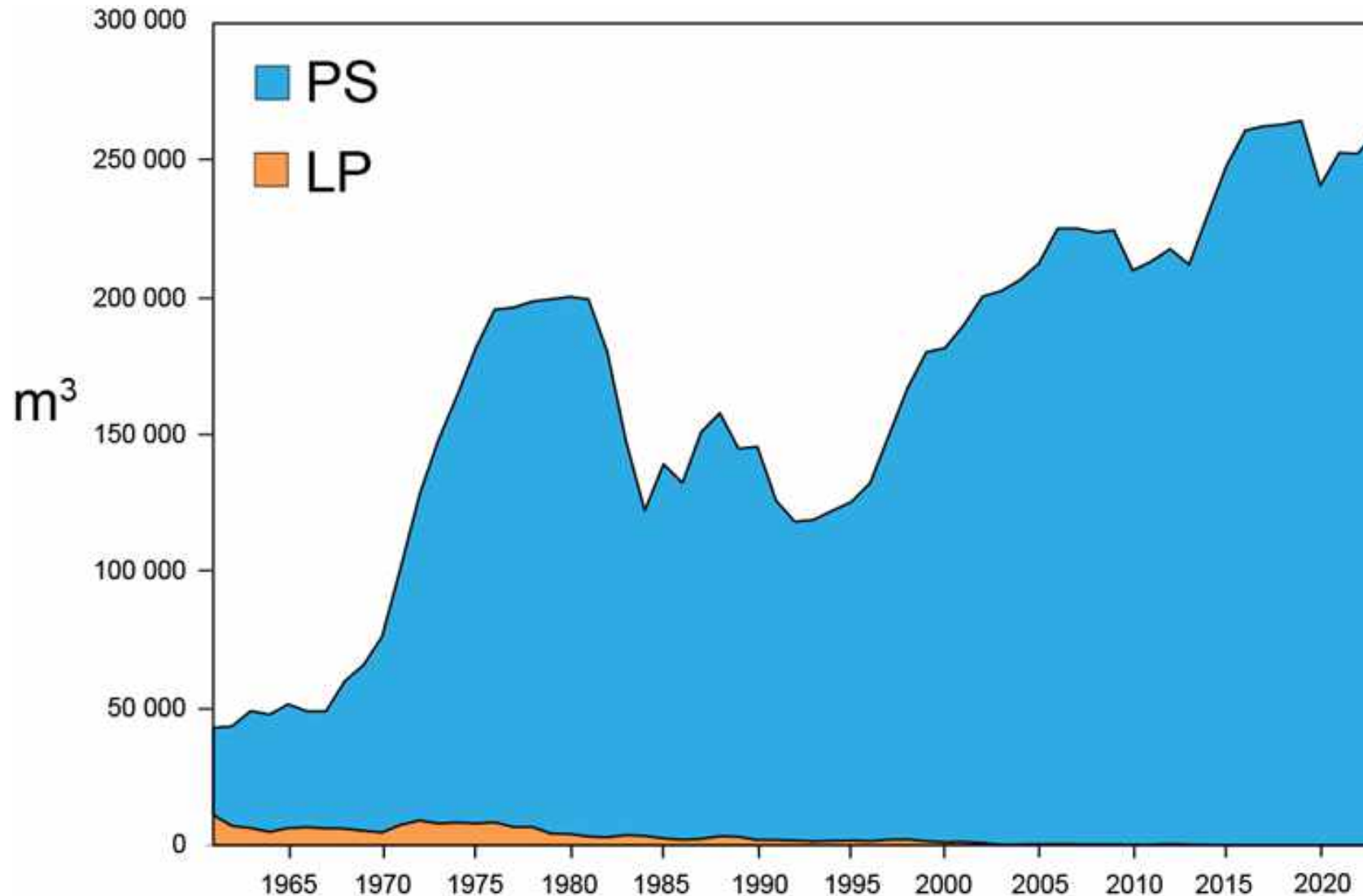
Buoy Abundance Index – *Índice de abundancia derivado de boyas*



FAD-08-03 – BAI indices / IAB tropicales
SAC-15-04 - SKJ assessment / evaluación de barrilete

Capacity – Capacidad

Carrying Capacity – Capacidad de la flota

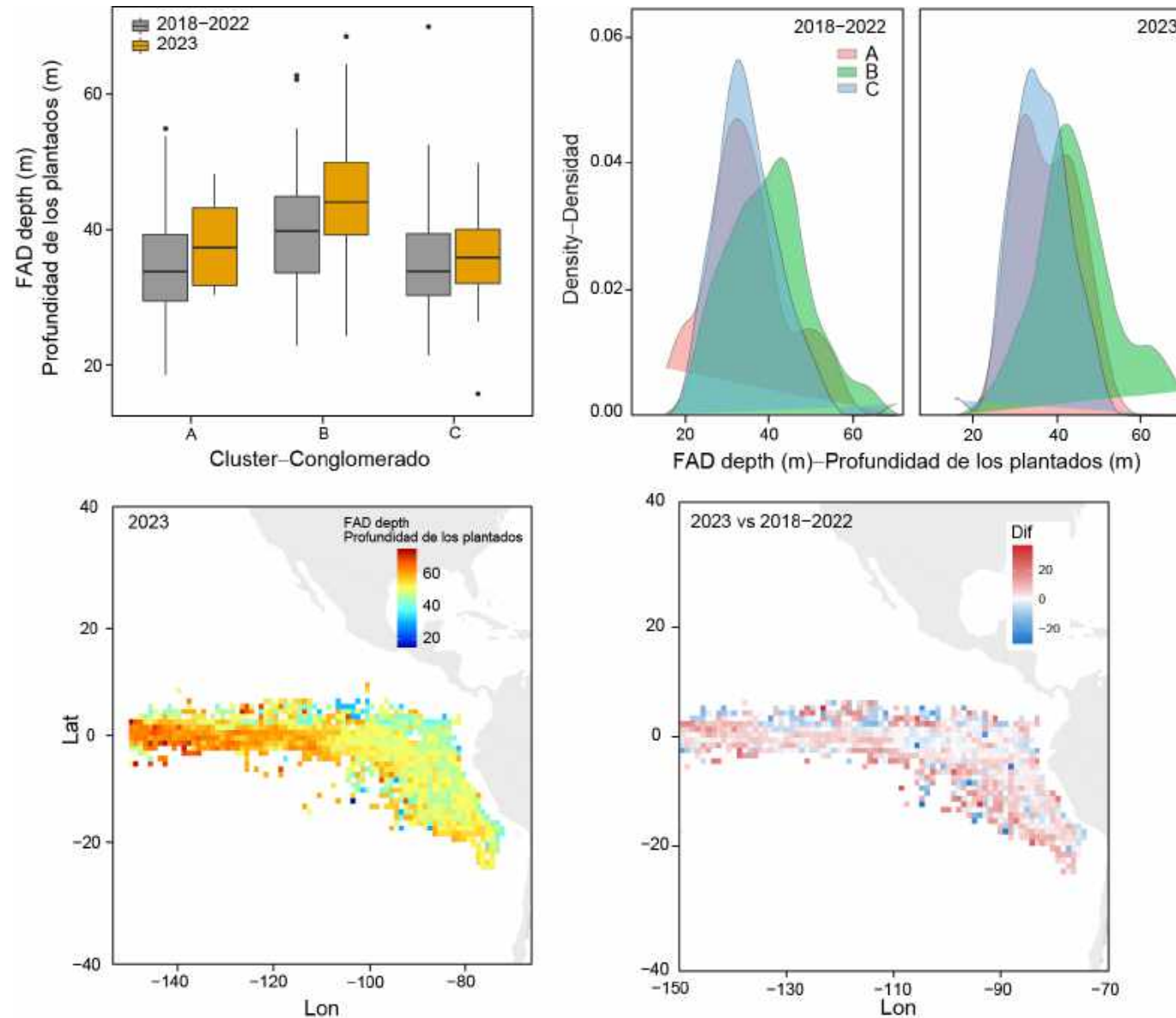


~262K annual/annual
(246 vessels/buques)

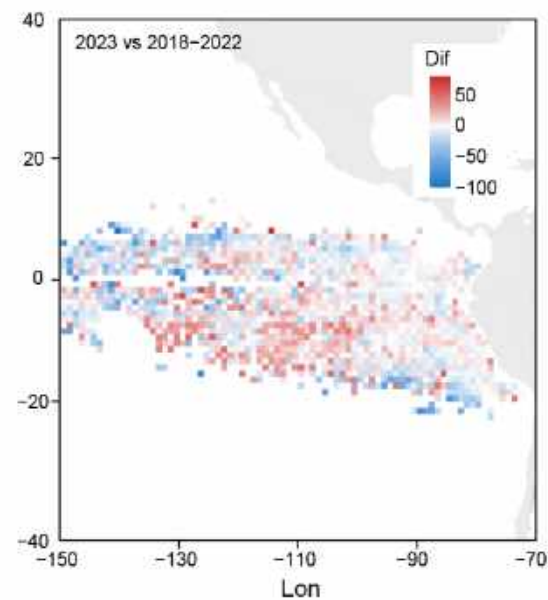
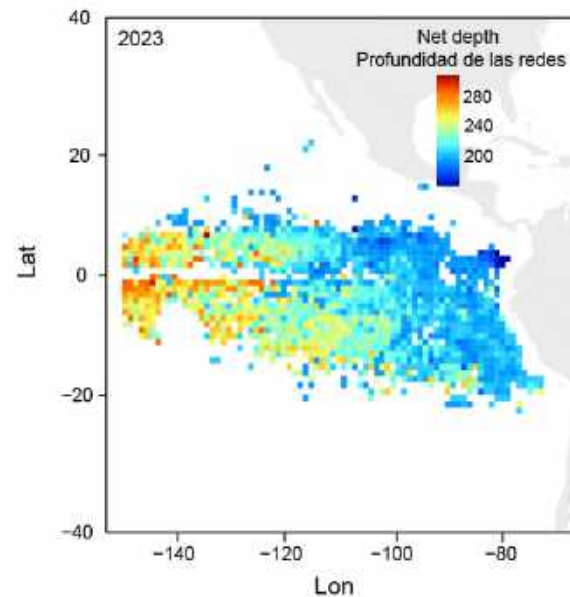
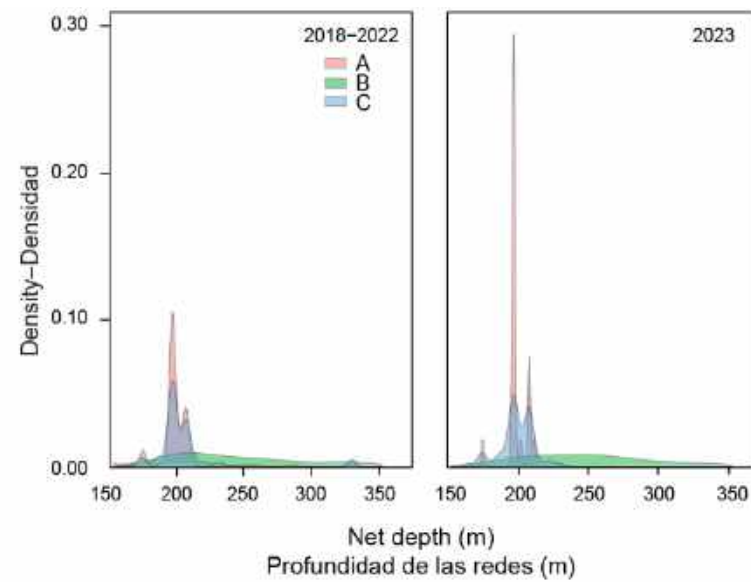
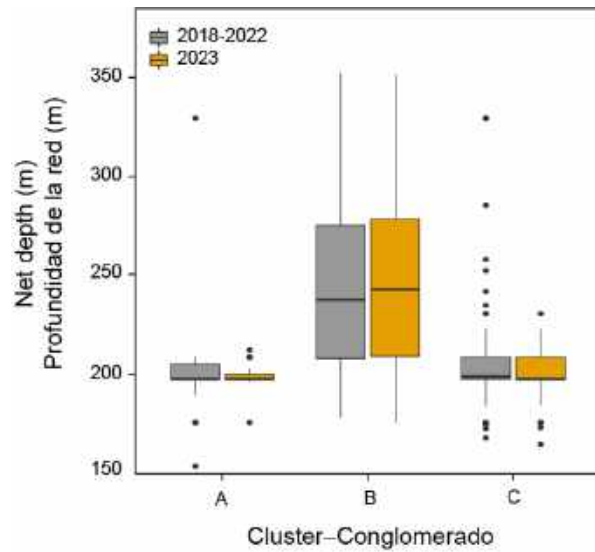
~137K/monthly-
mensual (~%52)

Technology – Tecnología

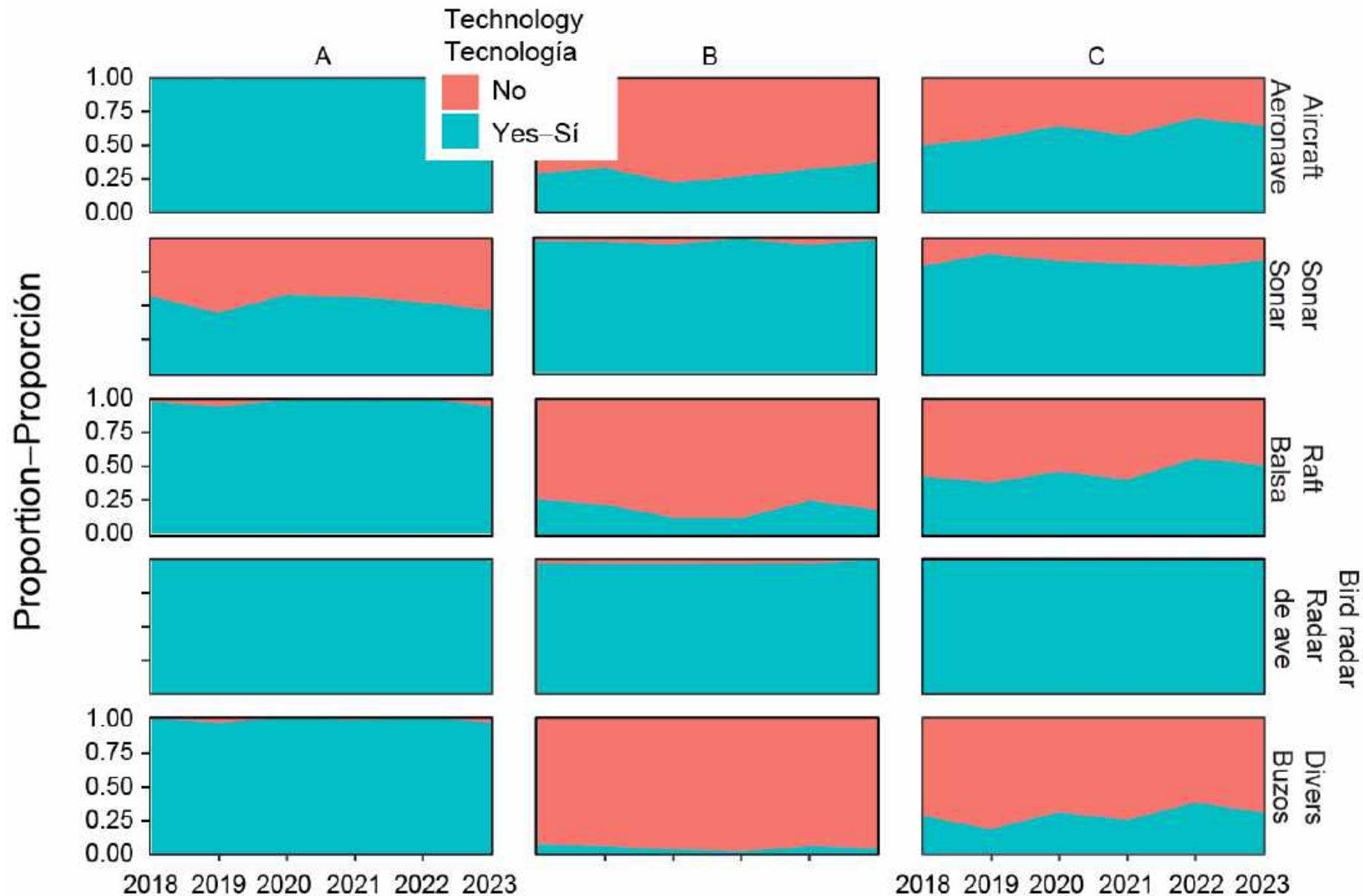
FAD depth – Profundidad de plantados



Net depth – Profundidad de red



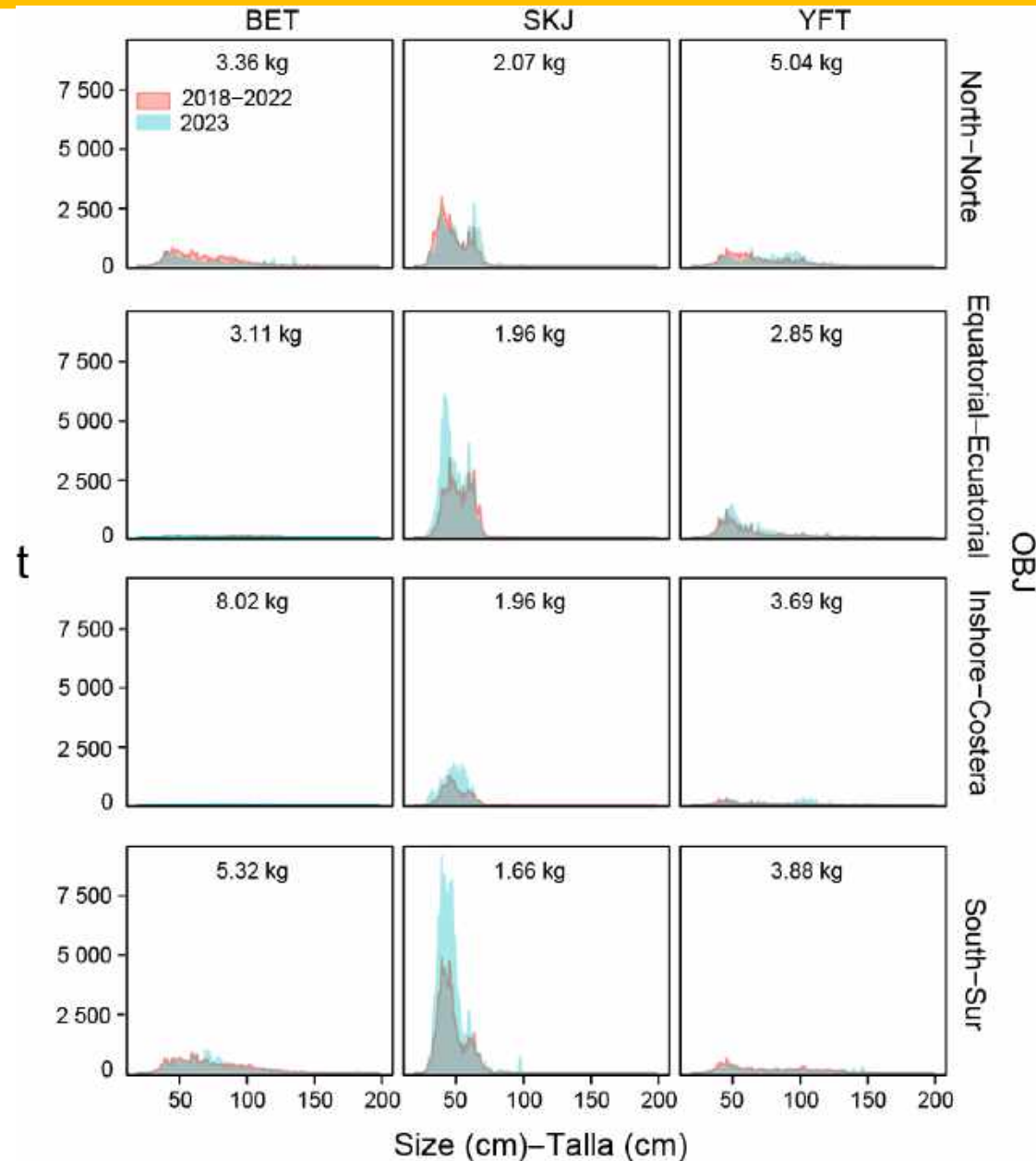
Onboard technology – Tecnología a bordo



Ecosystem impacts – Impacto sobre el ecosistema (see/ver EB-02-01)

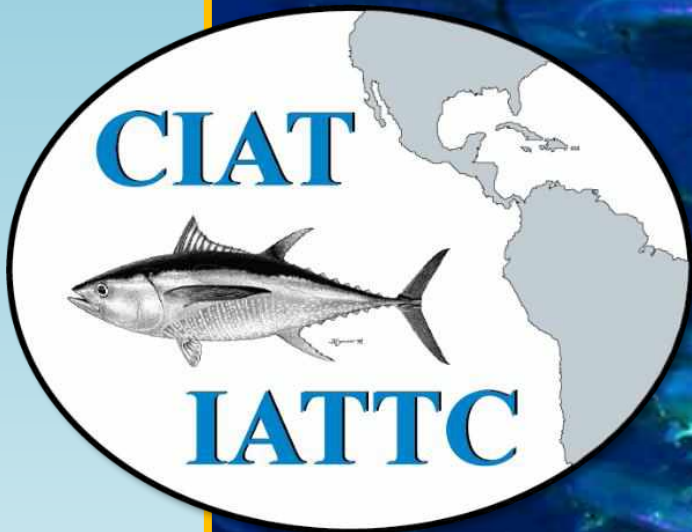
Biology – Biología

Size composition of tuna – Composición de tallas de atún



Future prospects – Trabajo futuro

- Extend to include other indicators of interest: stranding events (M.5.b), etc.
- Incluir otros indicadores de interés: 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 boyas crudos que reciben los usuarios originales.



Preguntas—Questions

