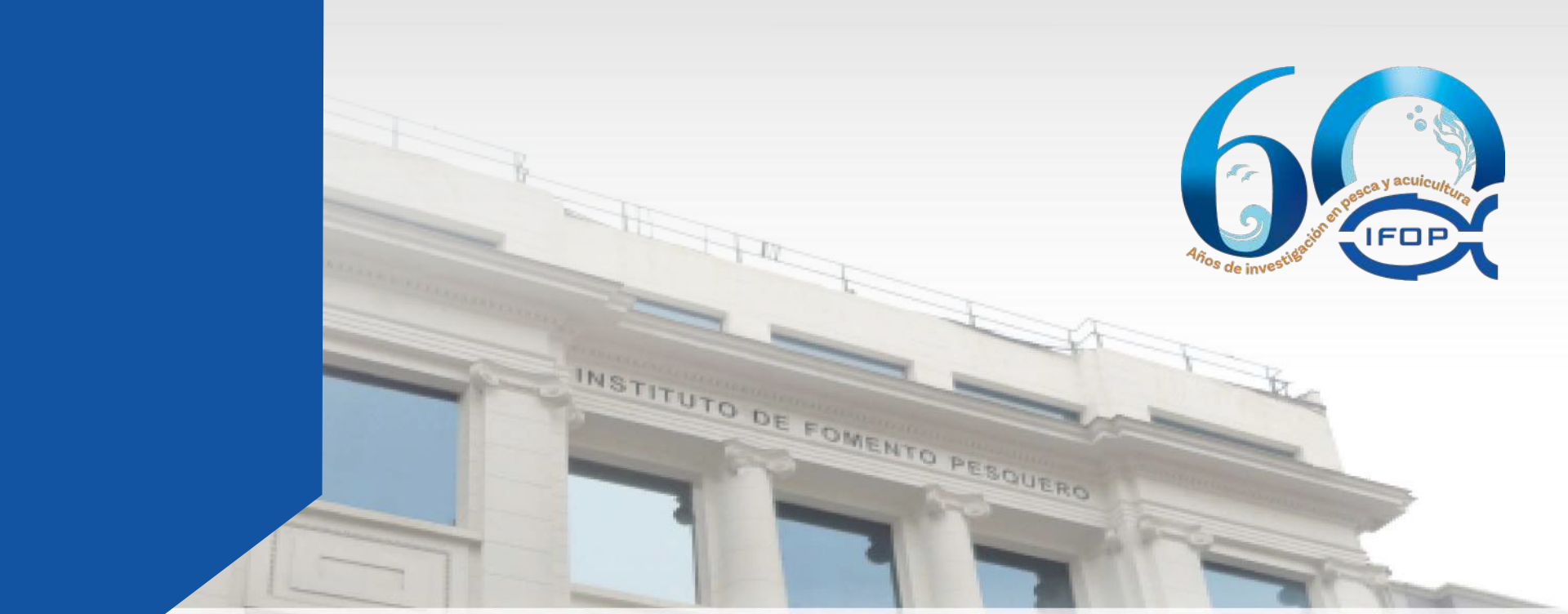


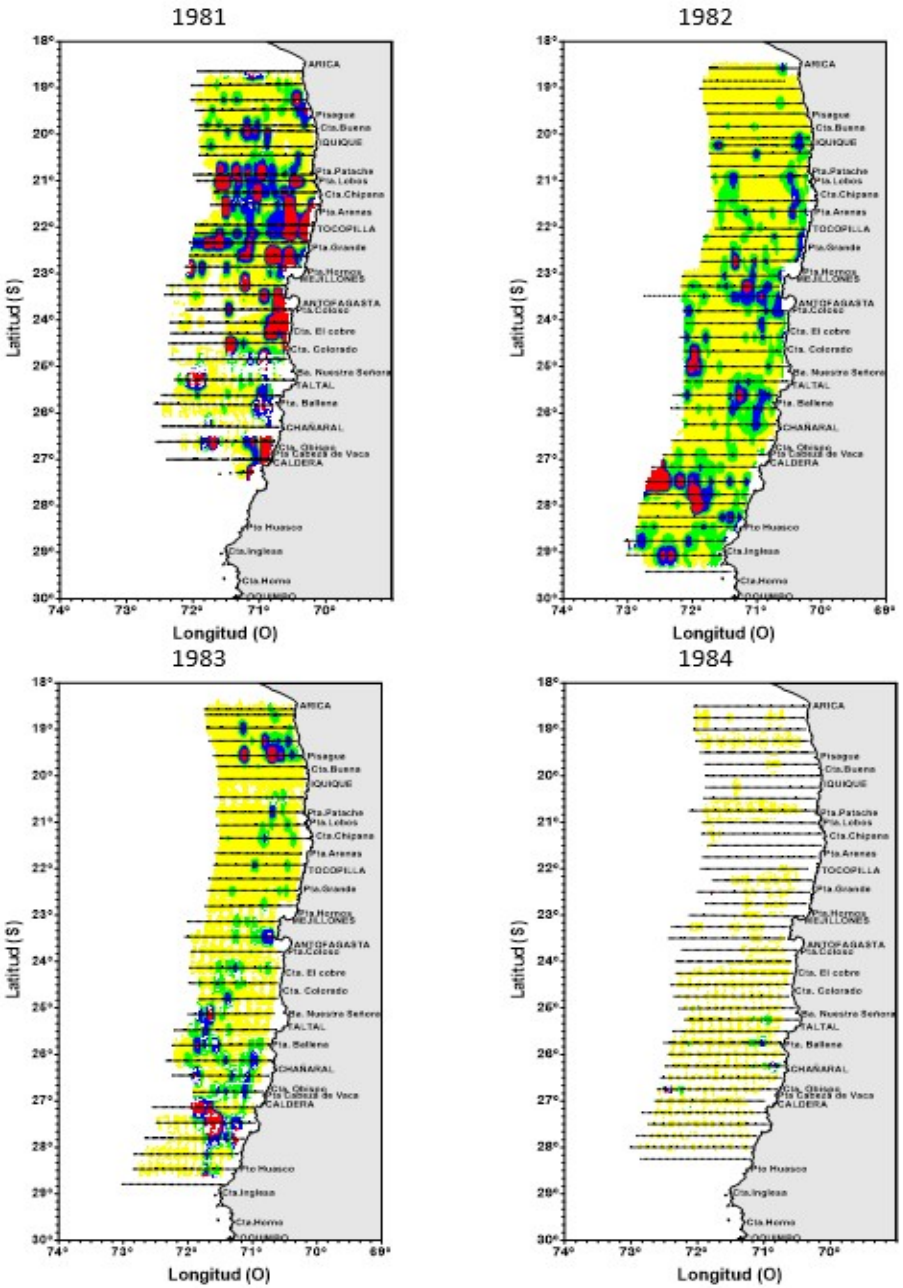
INSTITUTO DE FOMENTO PESQUERO

HISTORICAL SUMMARY OF HYDROACOUSTIC ASSESSMENT OF JACK MAKEREL IN CHILE

Víctor Catasti

May, 2026

HISTORICAL DISTRIBUTION OF JACK MACKEREL IN NORTHERN CHILE



Hydroacoustic assessments of JM in the northern zone began in 1981.

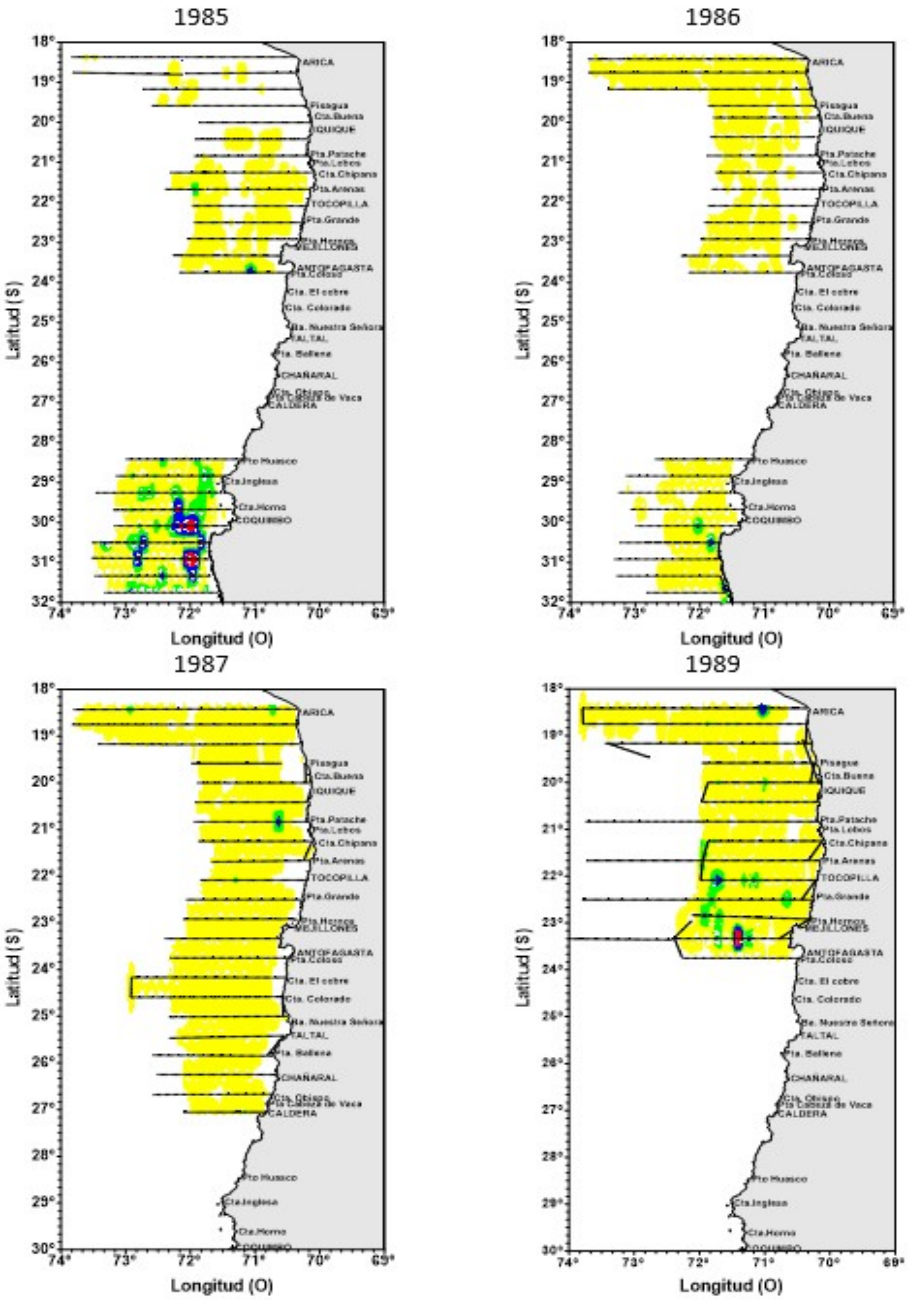
Sampling design Systematic type

Latitudinal Distance 10 nm
Longitudinal Distance 100 nm

1982 Event El Niño.
This year in the study area there was an El Niño event

Decrease JM biomass

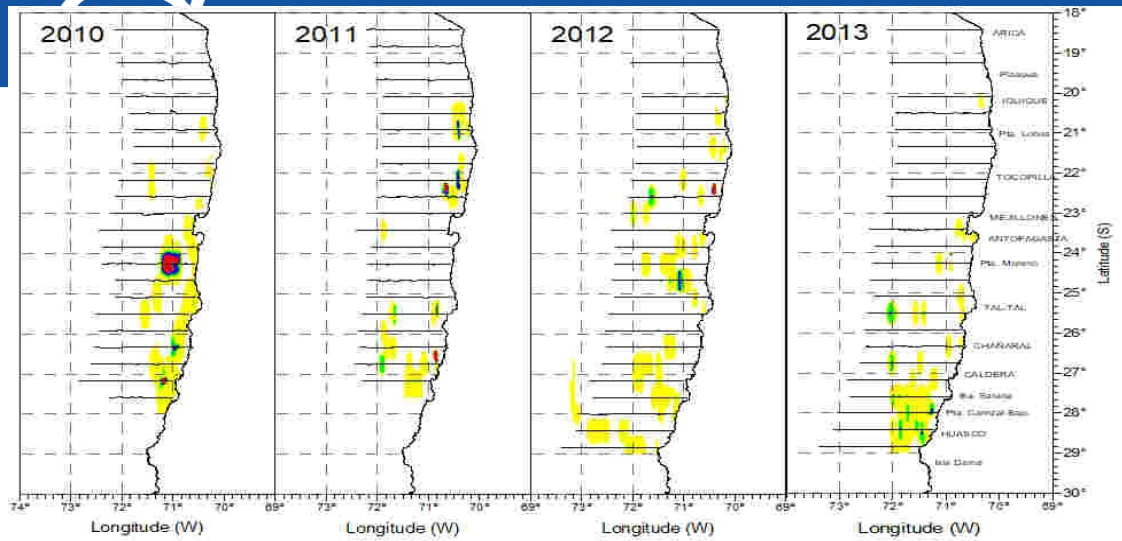
HISTORICAL DISTRIBUTION OF JACK MACKEREL IN NORTHERN CHILE

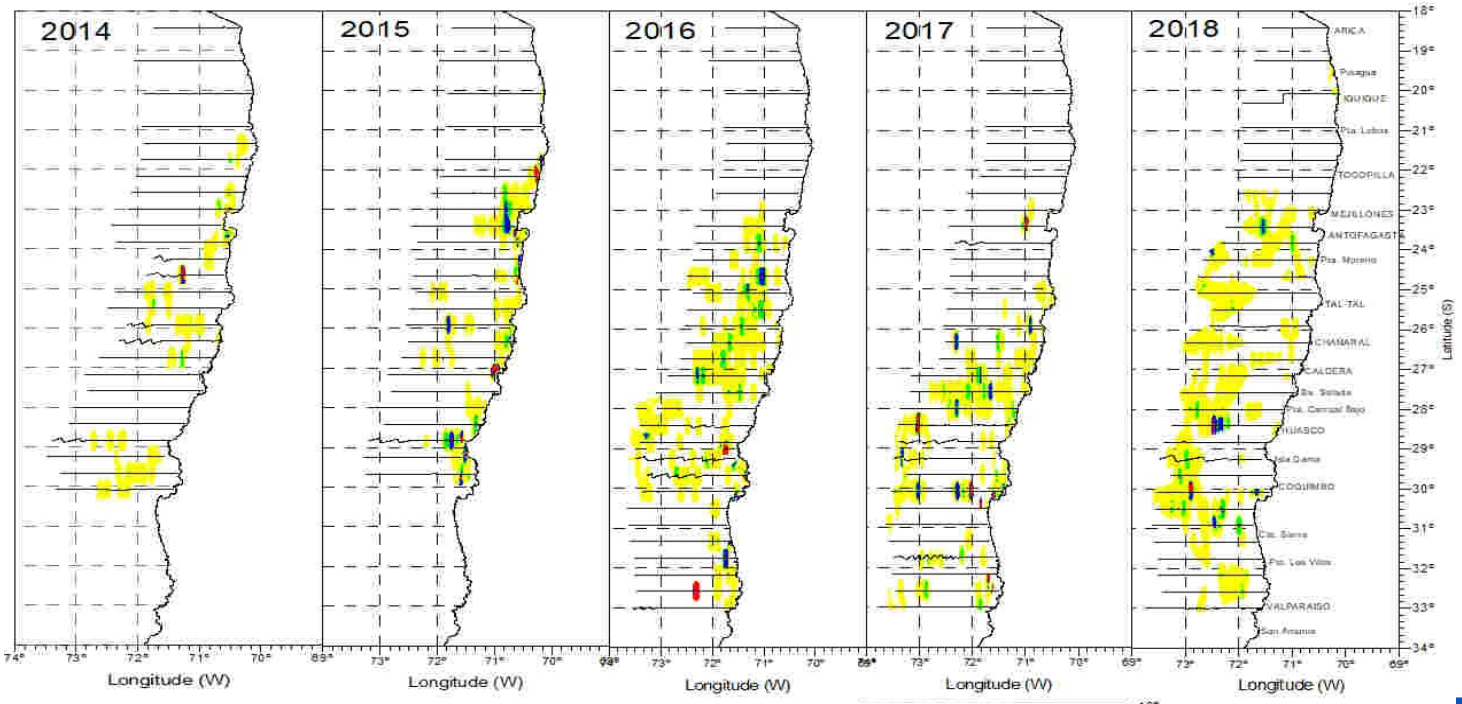


The series continued until 1989, with changes in design and area of study.

1989, the acoustic survey were discontinue.

HISTORICAL DISTRIBUTION OF JACK MACKEREL IN NORTHERN CHILE





During the period 2010-2013, the species was mainly distributed between Iquique (20°00´S) and Huasco (28°30´S), with an absence of the resource towards the northern limit of the survey area.

In 2014-2015, the area incorporated a region towards the southern limit and extended to the NW of Coquimbo.

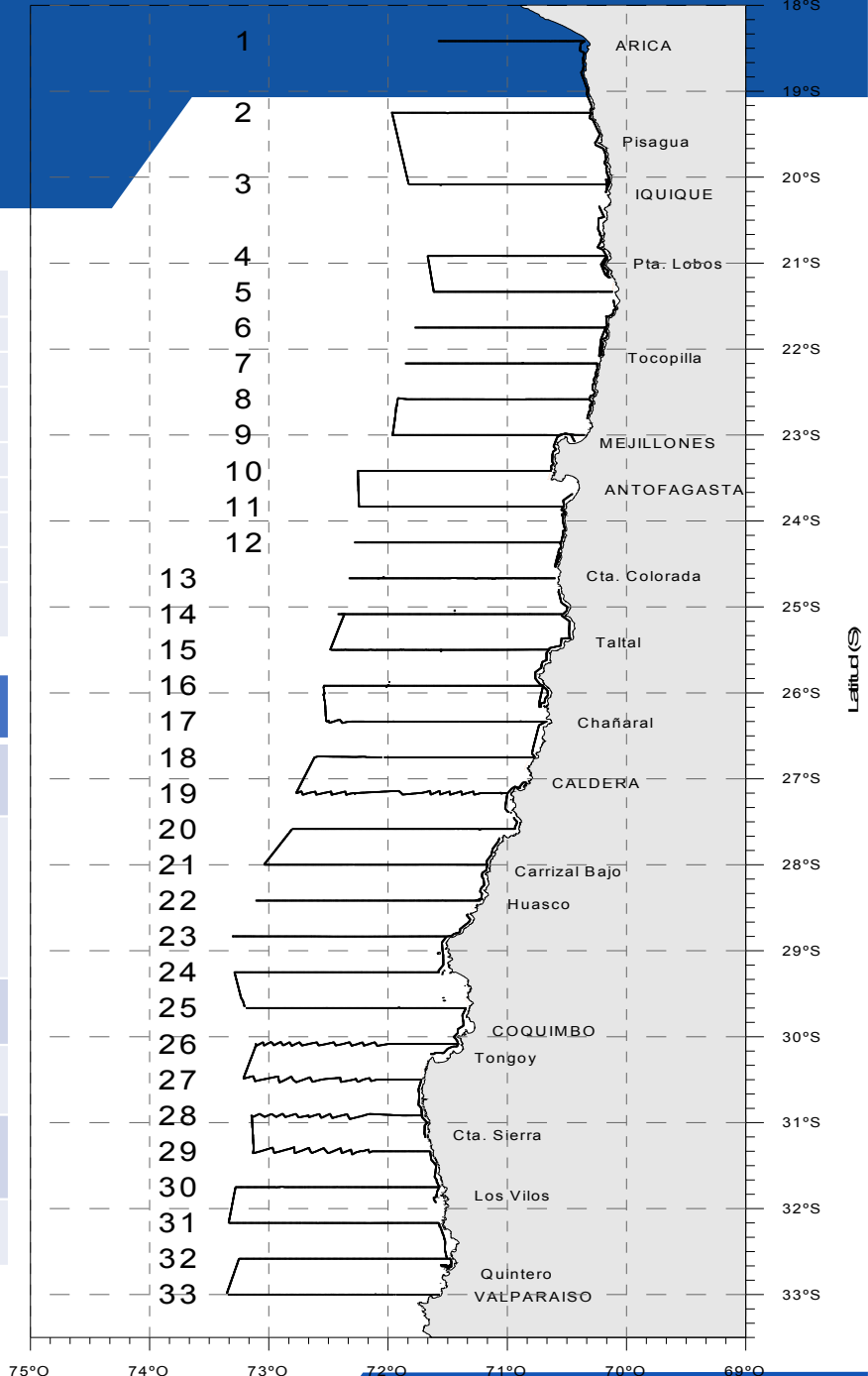
In 2016, the study area between Arica and Valparaíso with the addition of the Coquimbo-Valparaíso.

In 2017, the JM experienced a decrease in its geographic coverage.

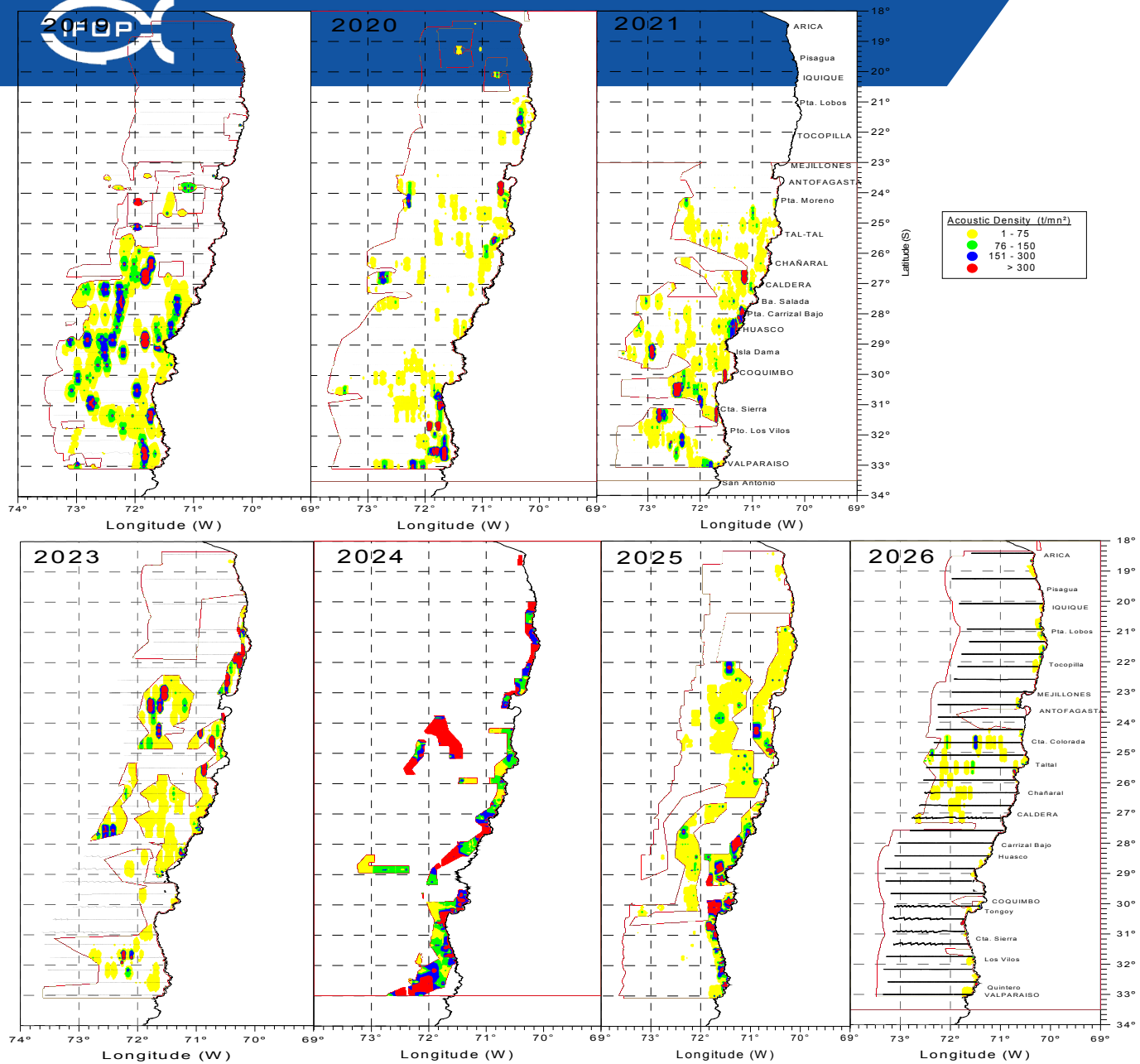
TRANSECTS DISTRIBUTION

ACTIVITIES	DATES	DAYS
Calibration Echosounder (in port)	16/march/2026	
Personal Boarding	17/march/2026	
Sail Valparaíso – study zone	18/march/2026 – 01/april/2026	15
Catering Caldera	02/april/2026	1
Sail Caldera – study zone	03/april/2026 – 19/april/2026	17
Catering Iquique	20/april/2026	1
Sail Iquique – study zone	21/april/2026 – 26/april/2026	5
Navegation Valparaíso	29/april/2026	4

Feature	Observation
Sampling design	Systematic type
Number of transects	**33** perpendicular to the general direction of the Chilean coast Direction E – W – E
Latitudinal Distance	25 nm
Longitudinal Distance	100 nm
Condition	Day and night acoustic sampling
Daily latitudinal advance	25 nm (approximately)



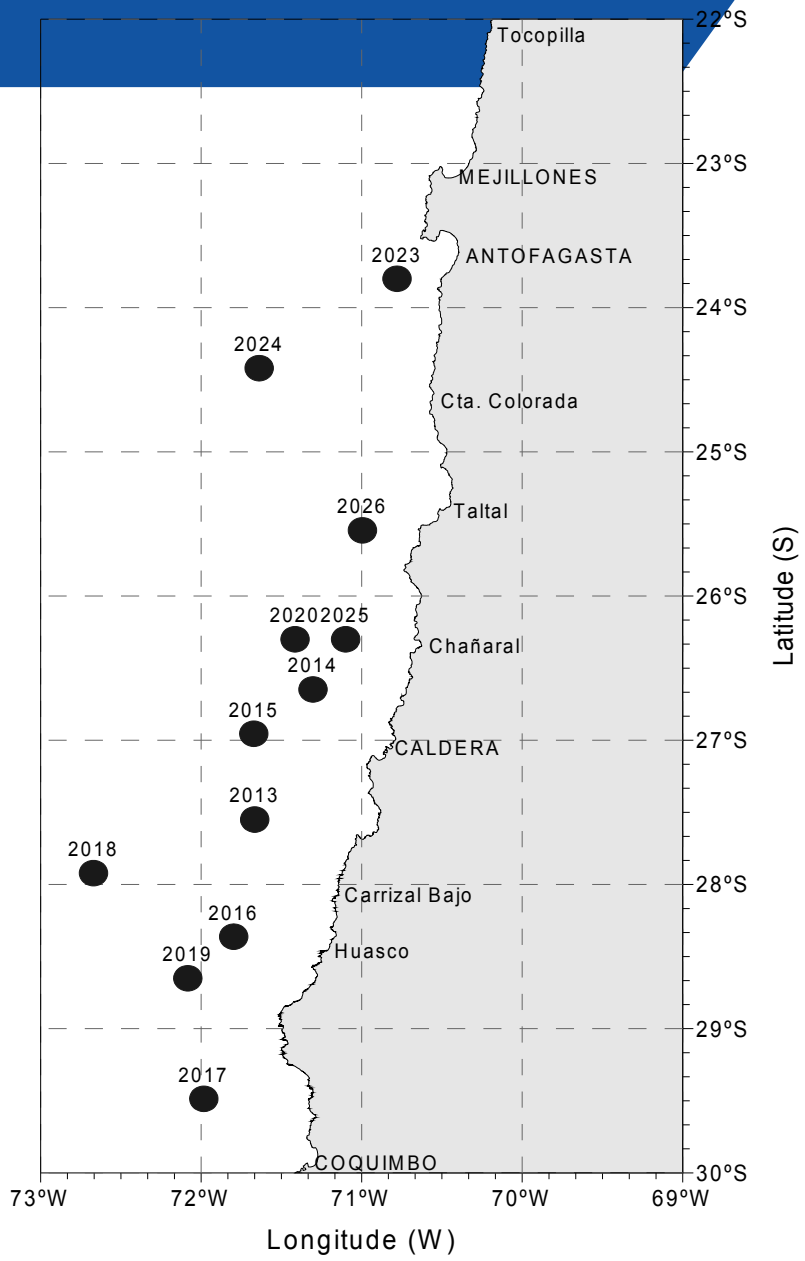
HISTORICAL DISTRIBUTION OF JACK MACKEREL IN NORTHERN CHILE



For the years 2020 to 2025, a significant variation in the spatial coverage of the Chilean jack mackerel was observed, exhibiting a geographic distribution between southern Arica and Valparaíso, distributed along the entire coast, with a significant area around Arica.

Considering that in these last years, the northernmost part of the study area shows a strong increase in its contribution to the total acoustic density, a possible redistribution of the JM off the coast of Chile is suggested.

CENTERS OF GRAVITY



The shift in the JM over the years was also observed in the centers of gravity (CG).

During early years, the CGs were located in the cost of Huasco.

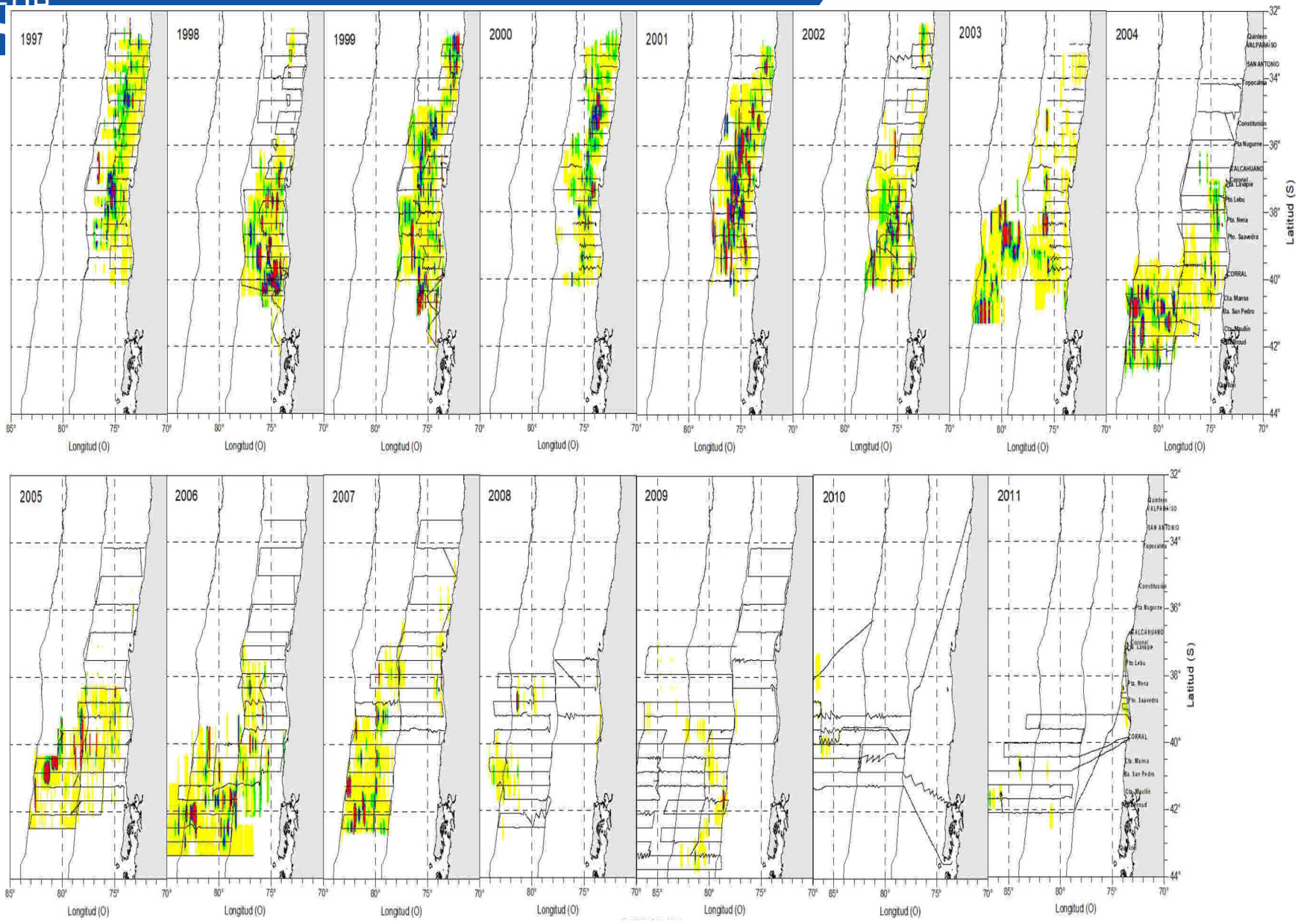
From 2020 onwards, the CG shifted significantly northwards, reaching the Antofagasta area by 2023.

ABUNDANCE AND BIOMASS
2010-2026

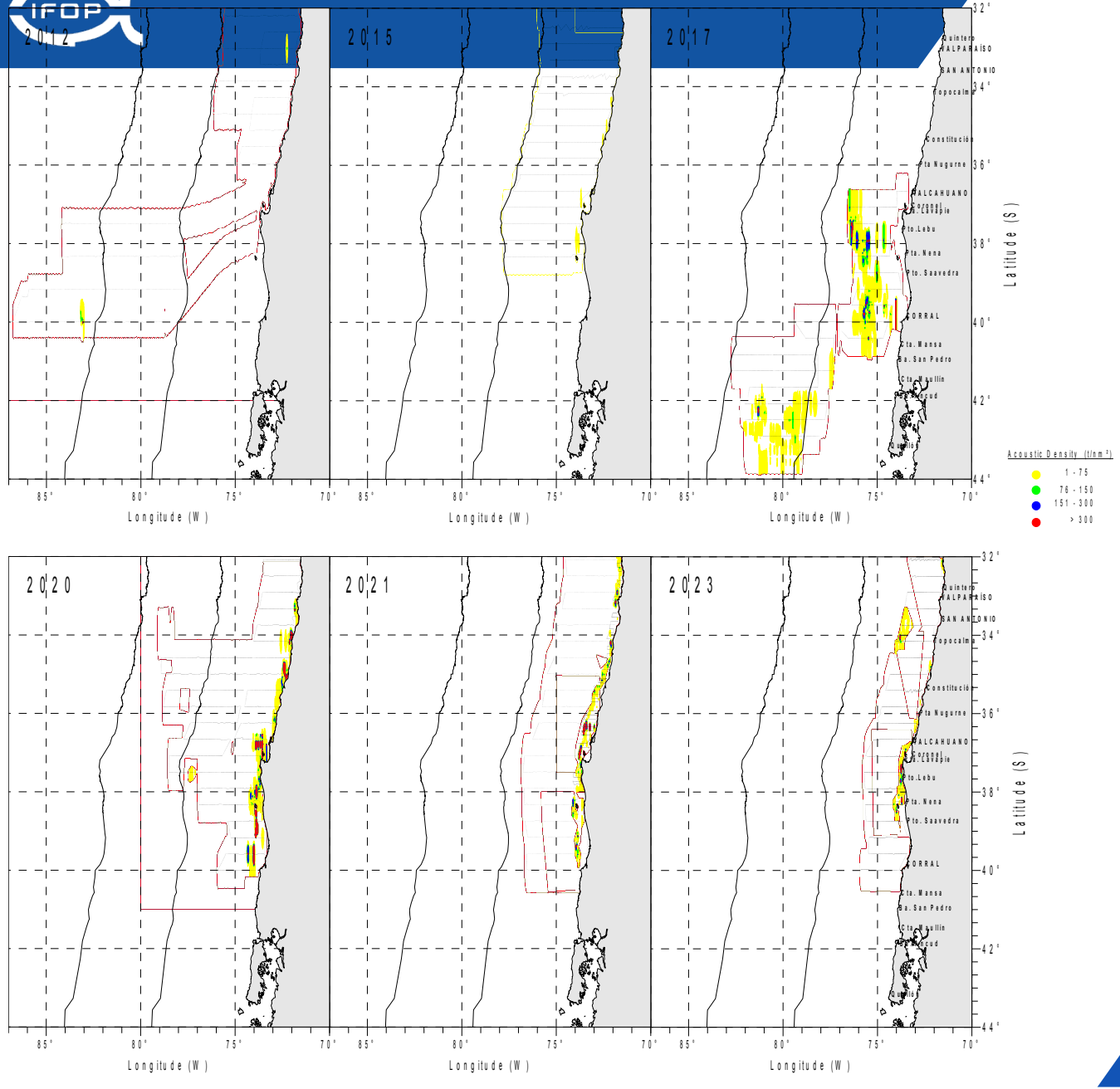
YEAR	PERIOD	ABUNDAN (núm)	BIOMASS (t)	AREA	DENSITY (t/mn2)	Biomass zona1
2010	April-May	2359547127	440358	17239	25.54	440358
2011	April-May	2831803877	432935	7560	57.27	352409
2012	March-April	1284085643	231583	8115	28.54	167192
2013	March-April	780666176	144139	4115	35.03	9106
2014	March-April	1585867319	87229	5794	15.06	57881
2015	March-April	5764293123	459485	8020	57.29	261054
2016	March-April	6716953946	577235	19173	30.11	121822
2017	March-April	8526700737	610097	14912	40.91	49677
2018	March-April	10053739366	375661	26492	14.18	84511
2019	March-April	8541267647	1486649	17517	84.87	140158
2020	March-April	9013744554	1728532	19693	87.77	474530
2021	March-April	12261453231	1904359	22382	85.09	142034
2022	March-April					
2023	March-April	6693050651	2508883	18189	137.94	1656469
2024	March-April	13531355332	2781691	10944	254.18	1368230
2025	March-April	16093054541	3074857	16703	184.09	875033
2026	March-April	3263283960	642382	11434	56.18	357802

(*) 2026 P r e l i m i n a r y R e s u l t s

HISTORICAL DISTRIBUTION OF JACK MACKEREL IN SOUTH CENTRAL CHILE


1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
Longitud (O)
Latitud (S)
Quintero
VALPARAISO
SAN ANTONIO
Topocalma
Constitución
Pta Nugurne
TALCAHUANO
Coronel
Cta. Lavapie
Pto. Lebu
Pta. Nena
Pto. Saavedra
CORRAL
Cta. Mansa
Ba. San Pedro
Cta. Maullin
Ancud
Castro

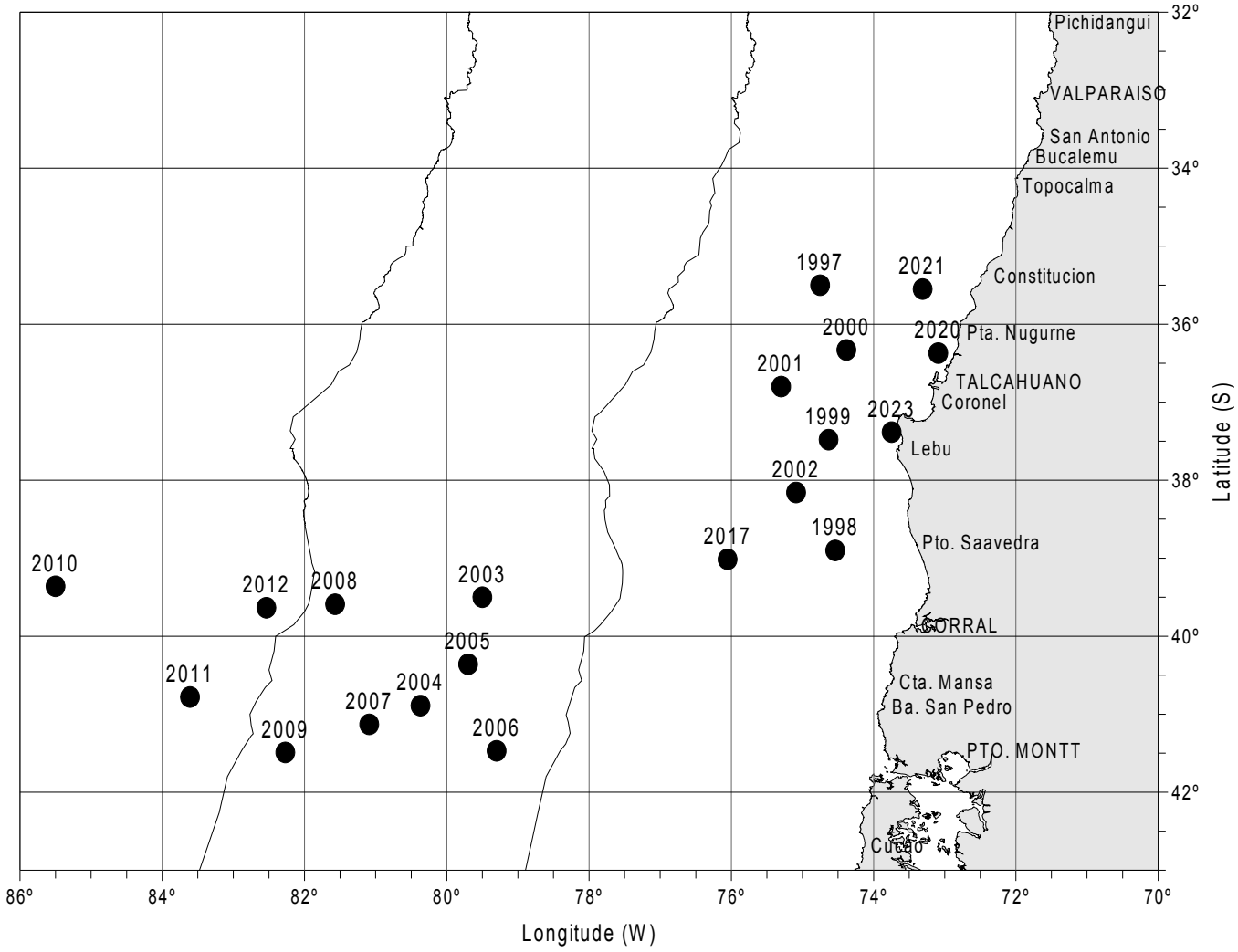
HISTORICAL DISTRIBUTION OF JACK MACKEREL IN SOUTH CENTRAL CHILE



2017-2023, there is an increase in the evaluated biomass going from 431,469 t (2017) to 837,349 t (2023), the high values in the prospected area is consistent with what was observed in the hydroacoustic evaluations of jack mackerel in the north of Chile.

Since 2020, the resource has mainly concentrated its abundance linked to the coastal sector from Pichidangui to Corral, but with an inverse pattern in the spatial distribution of sizes, recognizing the majority of smaller individuals coming from the oceanic sector.

CENTERS OF GRAVITY



The migrations exhibited by the species were also observed in the centers of gravity (CG), since in the early years (1997-2002) the CGs were located within the EEZ.

Between 2003 and 2012, the CGs moved continuously towards oceanic sectors, reaching 500 nautical miles in 2010.

Period 2020-2023, the CGs shifted strongly towards the coastal sector and do not exceed 20 nautical miles from the coast.

ABUNDANCE AND BIOMASS
1997-2023

Years	1 to 200 nm	200 to 400 nm	400 to 600 nm	Total
	Biomass (ton)	Biomass (ton)	Biomass (ton)	Biomass (ton)
1997	3.753.516			3.753.516
1998	3.255.838			3.255.838
1999	4.381.572			4.381.572
2000	5.889.227			5.889.227
2001	6.146.418			6.146.418
2002	2.078.747			2.078.747
2003	914.653	1.831.599		2.746.252
2004	529.790	4.022.980		4.552.770
2005	583.260	3.503.062		4.086.322
2006	612.457	3.046.805	176.071	3.835.333
2007	87.753	3.155.924		3.243.676
2008	1.457	487.507	31.969	520.934
2009		328.016	206.522	534.538
2010			89.736	89.736
2011	7.975		119.545	127.520
2012			2.547	2.547
2015				0
2017	365.986.	65483		431.469
2020	1.548.640			1.548.640
2021	1.213.776			1.213.776
2023	837.349			837.349

In the first years, the biomass increased to a maximum of 6 million tons, then decreased, and in 2015 no jack mackerel was detected.

In recent years, biomass has shown a downward trend.

GRACIAS