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Ecuador Annual report

National Institute of Fisheries

2016 ECUADOR ANNUAL REPORT; JACK MACKEREL (*Trachurus murphyi*) IN ECUADORIAN WATERS

NATIONAL INSTITUTE OF FISHERIES, ECUADOR

1. INTRODUCCIÓN

The small pelagic fishes between the commercial fisheries represent in Ecuador the most important due to the commercial and social importance. Landings, processing (canned fish and flour fish) and exportations generate an important income to the country. Small pelagic fishery in Ecuador is mainly formed by thread herring (*Opisthonema* spp.), chub mackerel (*Scomber japonicus*), Pacific anchoveta (*Cetengraulis mysticetus*), Frigate tuna (*Auxis* spp.), Round herring (*Etrumeus teres*), sardine (*Sardinops sagax*), anchovy (*Engraulis ringens*), jack mackerel (*Trachurus murphyi*); this species are distributed along the coast of Ecuador, registering the most concentrations in the Gulf of Guayaquil and the minor catches in front of coast of Manabí (González et al 2008).

In this report, we present specifically biological and fishery information of jack mackerel (*Trachurus murphyi*), collected in the small pelagic fish monitoring program of the National Institute of Fisheries in the Ecuadorian purse seine fleet; highlighting when this resource is available in Ecuadorians waters.

2. FISHING ASPECTS

2.1 FISHING GEAR

One of the principal components of fishing methodology for small pelagic fishes is the “seine”. This type of gear catches species with 70 meters of depth, and concentrated in compact schools.

The dimensions for this gear can vary, in accordance to the size vessel (Castro 2012):

Vessels Class I – II

Length	220 – 450 bz
Depth	20 – 60 bz
Mesh size in cabecero	5/8” – 1⅛” inch

Vessels Class III – IV

Length	330 - 450 bz
Depth	40 - 60 bz
Mesh size in cabecero	¾” – 1⅛” inch

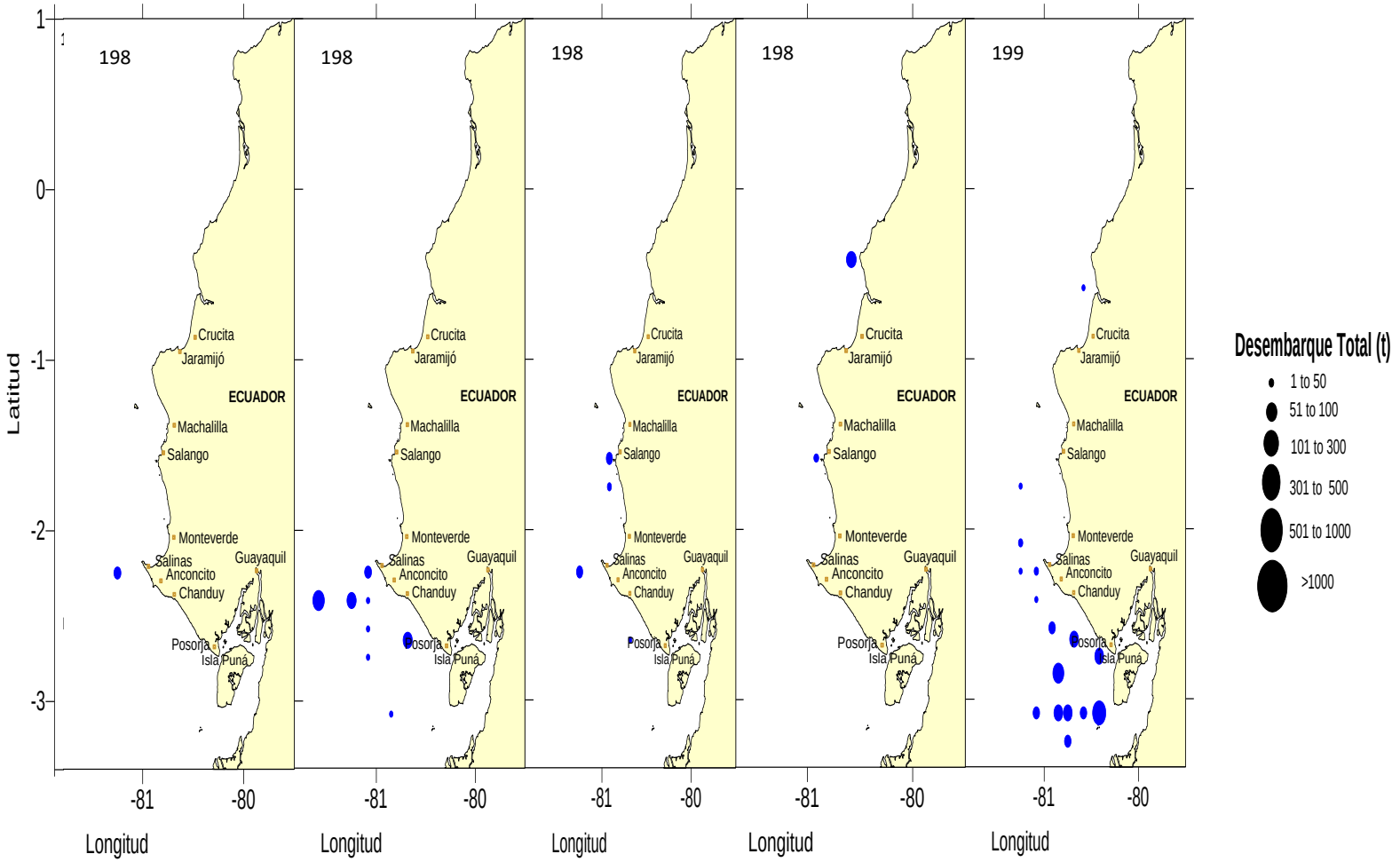
According to Ministerial Agreement 047 (April 9, 2010), it was established that “Fishery of small pelagic fishes as mackerel (*Scomber japonicus*), thread herring (*Opisthonema* spp.), jack mackerel (*Trachurus murphyi*), pacific anchoveta (*Cetengraulis mysticetus*); frigate tuna (*Auxis* spp.) and similar, must be done with seines and mesh size not less than 1⅛” inch (González 2012).

2.2 FISHING ZONES

The principal fishing zones with the higher concentrations of Jack mackerel, when is available in Ecuadorian waters, correspond to the Gulf of Guayaquil and around Peninsula de Santa Elena.

Catch data is recorded by the national institute of fisheries since 1982; in the case of jack catches are registered since 1990; being the internal part of Gulf of Guayaquil with most presence, and around Santa Clara Island as well. In 2001 were reported catches in front of the province of Manabi, and southern of Isla de la Plata.

For 2011 fishing zones were reported in front of Province of Manabi, being the Península de Santa Elena where were registered the higher concentrations of jack mackerel (Figure 1).



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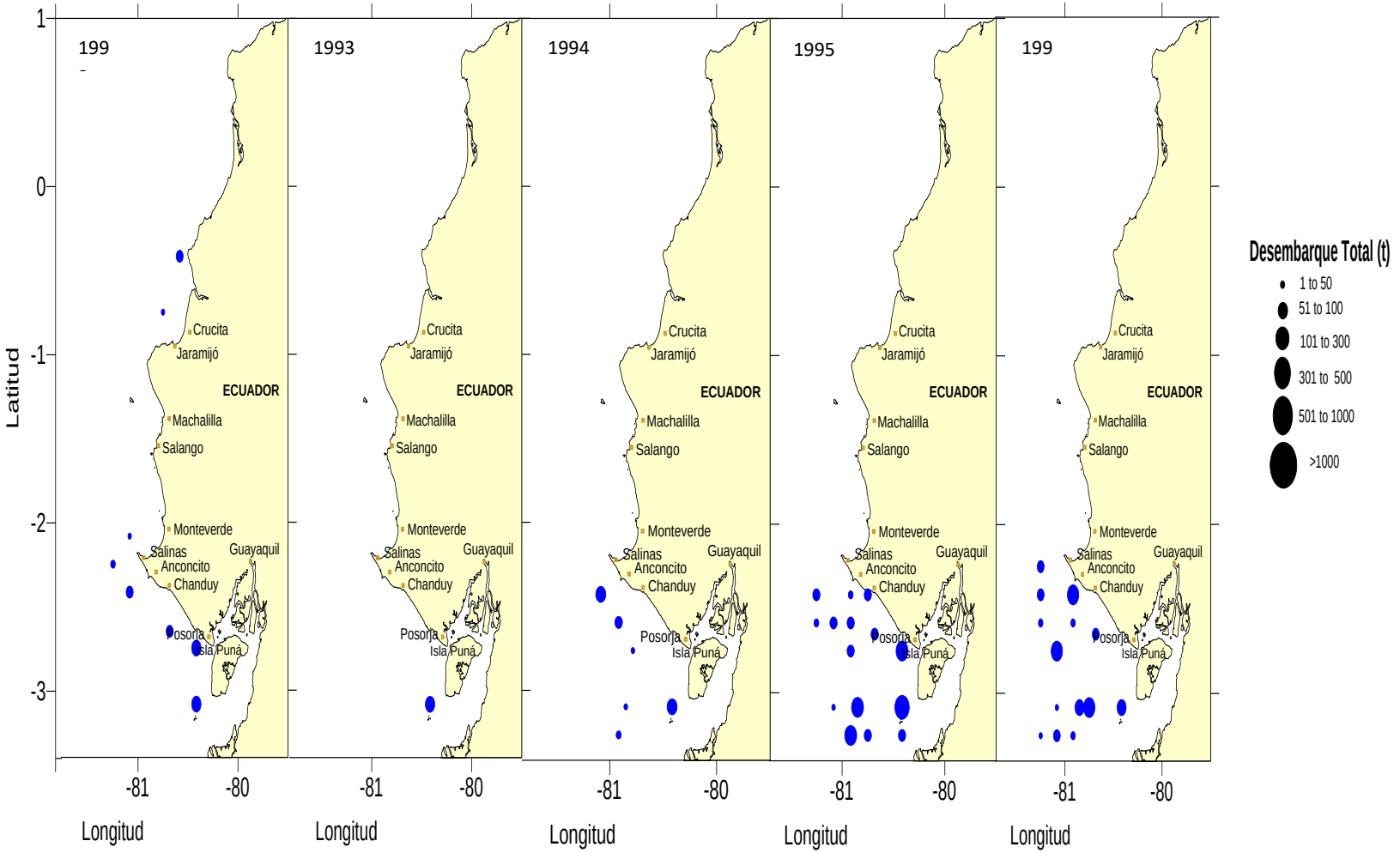

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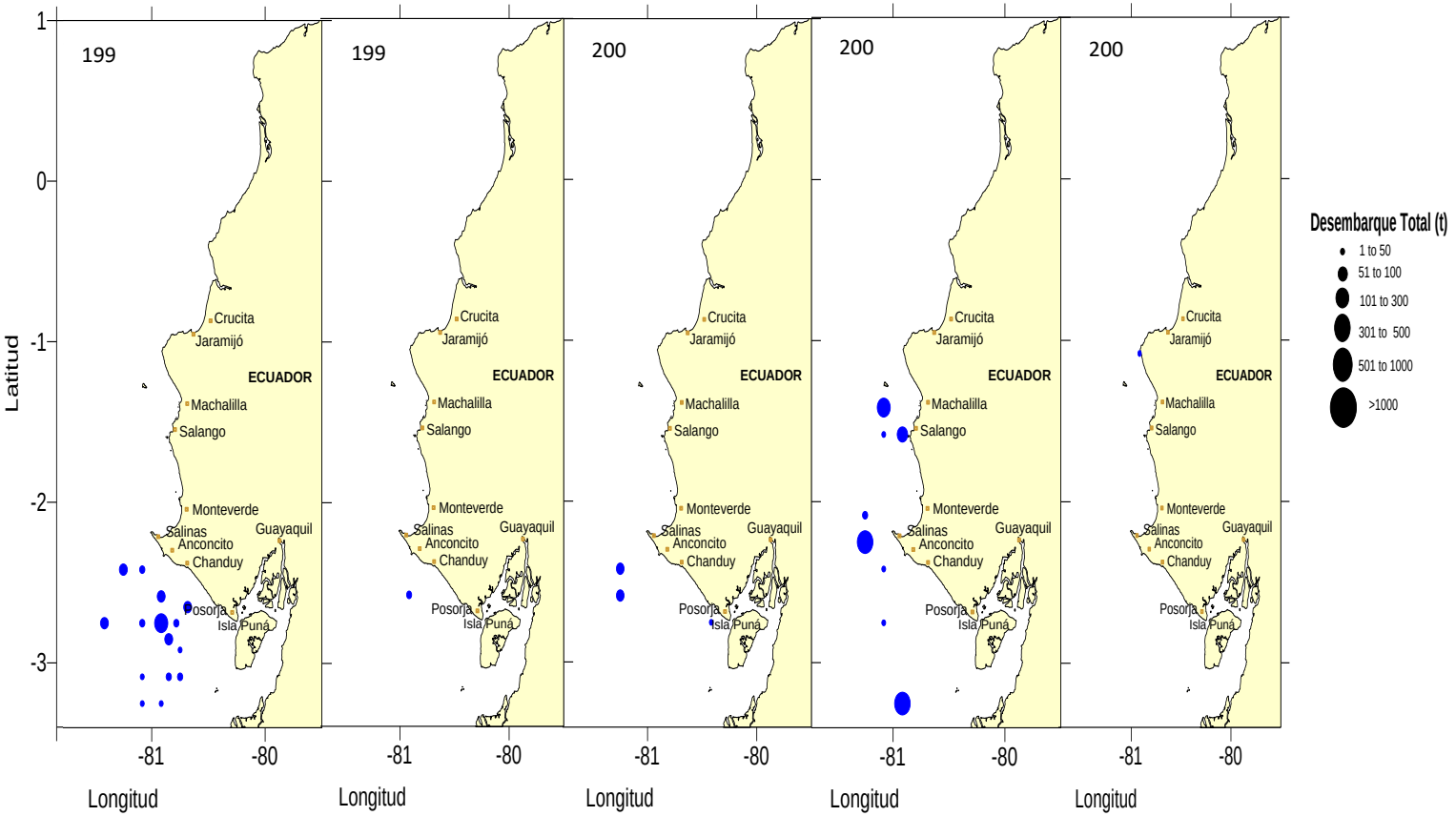

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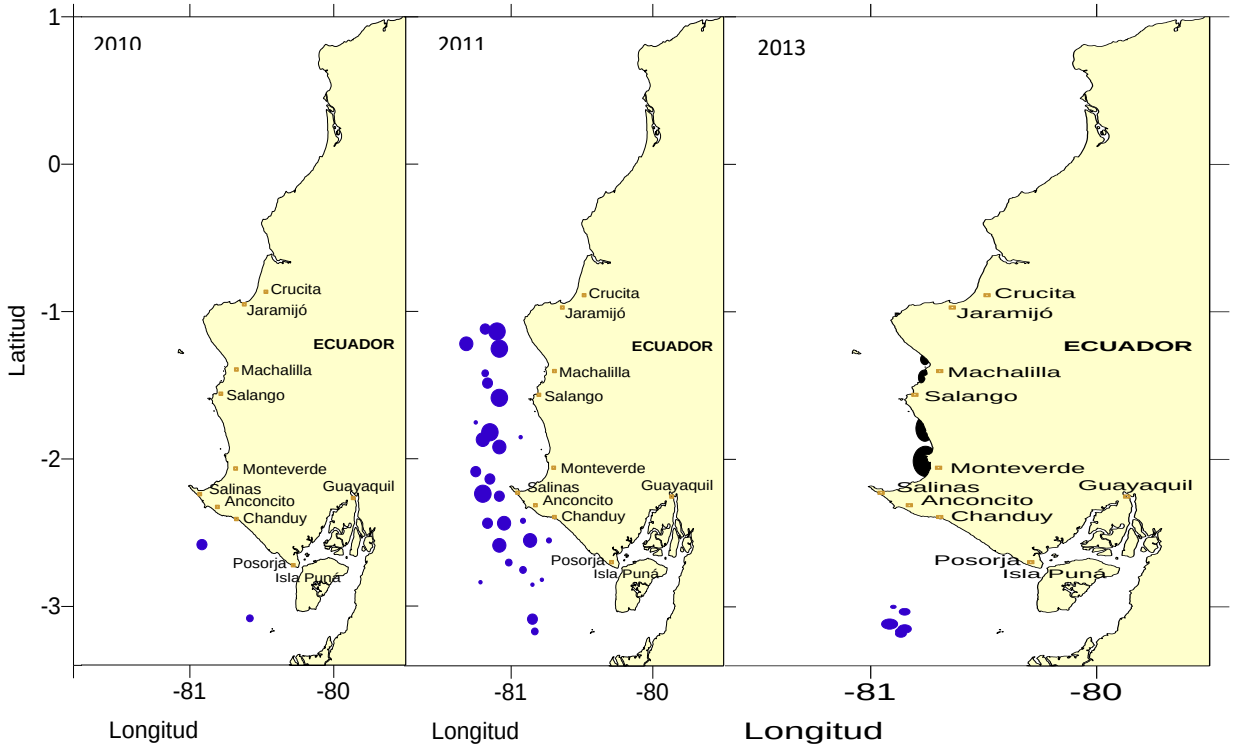

Figure 1. Spatial Distribution of jack mackerel in Ecuadorian waters.

2.3 LANDINGS

The first report of this specie was identified for Massay (1983); afterwards, in 1984 and 1990, has been reported variables catches (September - October), located in the southern of Gulf of Guayaquil (Aguilar 1992); the landings were associated to secondary species in the small pelagic fishery.

During the 90´s the catches of jack mackerel were present significantly, being 1995 the most important (174 393 t) with 42.8% of the total landings of small pelagic fish, later the catches decreased, and in the subsequent years the catches were minimal except for 2001 (133 969 t).

During the period 2002 - 2009, the availability of this resource was minimal, reporting catches isolated in 2002, 2007 and 2009 (604 t, 927 t and 1 934 t, respectively).

On the last week of December 2010 were reported catches of jack mackerel (4 613 t), later during the first quarter of 2011 was registered a total of 69 373 t, Subsequently, variable and insignificant catches have been recorded in relation to small pelagic fishes (Table 1, Figure 2).

Table 1. Historical catches (t) of Jack mackerel in Ecuadorian Waters

Years	Jack Mackerel	Total Small Pelagic Fishes
81	-	1040589
82	-	1151705
83	-	545708
84	-	1333825
85	-	1988051
86	-	1266286
87	-	740769
88	-	938212
89	-	656265
90	4144	230633
91	45313	226839
92	15022	166239
93	2673	279573
94	36575	167007
95	174393	233009
96	56782	537705
97	30302	376818
98	25900	143806
99	19072	139151
00	7122	182465
01	133969	228484
02	604	129670
03	-	131038

04	-	103095
05	-	185122
06	-	162765
07	927	148933
08	-	182965
09	1934	172306
10	4613	153327
11	69373	122029
12	77	169933
13	3563	156228
14	9	201336
15	289	261904
16	-	282203

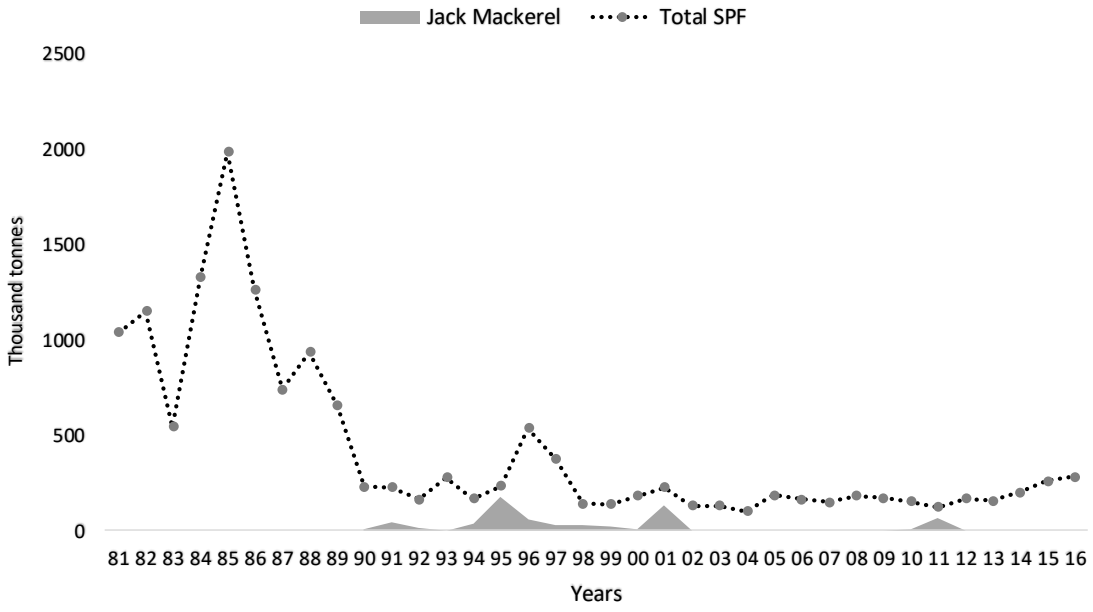

Figure 2. Total annual landing (t) of Jack Mackerel in Ecuadorian waters.

***SPF Small Pelagic Fishes**

3. BIOLOGICAL ASPECTS

3.1 LENGTH FREQUENCY ESTRUCTURE

The length structure of jack mackerel caught by the Ecuadorian fleet can be described as: 1) the composition for the years 1984 to 1992 ranged between 19 and 64 cm TL, mostly represented by individuals between 27 and 46 cm TL, 2) since 1994 to 1999 the structure was composed of organisms between 34 and 42 cm TL mostly, and 3) 2000 to 2015 composed for organisms between 26 to 32 TL cm with the exception of 2013 the size range was between mostly between 38 and 41 cm TL (Figure 3, 4).

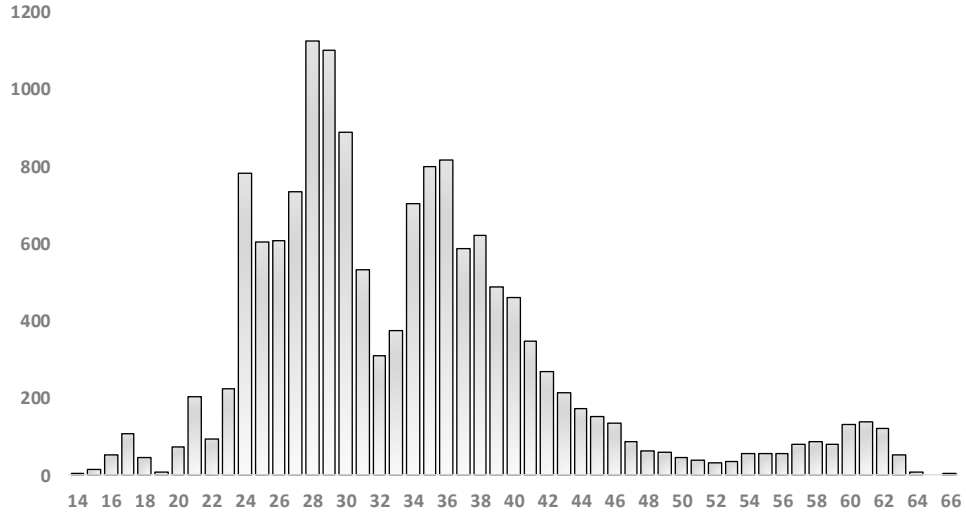

Figure 3. Length frequency of Jack mackerel in Ecuadorian waters, 1984 – 2015 period.

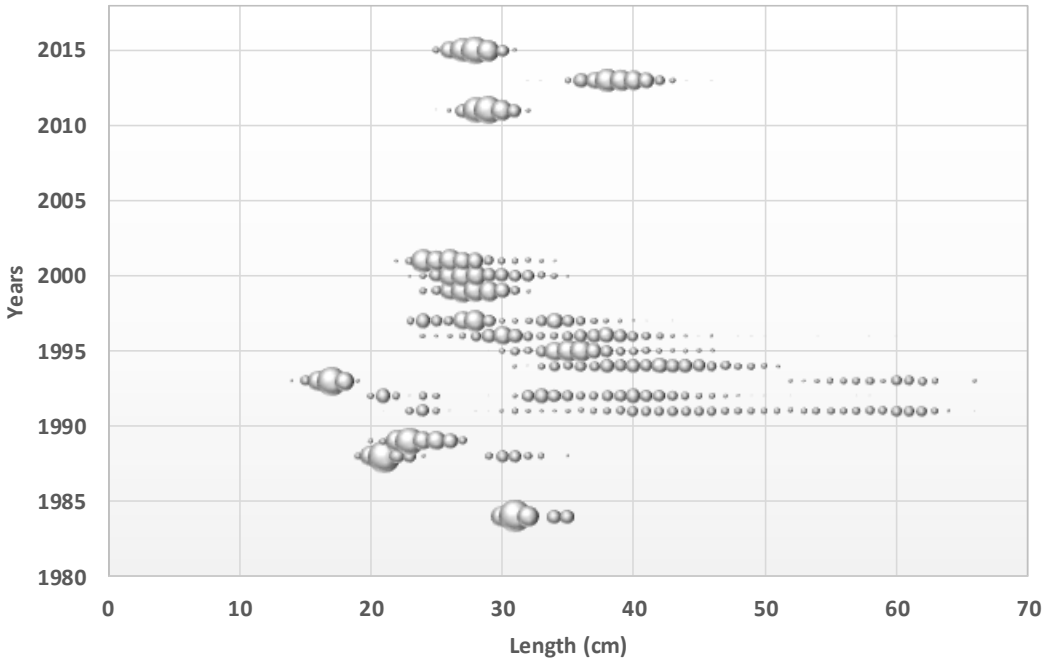

Figure 4. Bubble diagram of length frequency per year of Jack mackerel

In general, due to the irregular incidence of jack mackerel in Ecuadorian waters, it is not possible to define clear trends from the available size structure, or displaying the entry of recruitments or track cohort, and project on the stock structure.

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