

10th MEETING OF THE SCIENTIFIC COMMITTEE

26 to 30 September 2022, Seoul, Korea

SC10-Doc31
Ecuador Annual Report - Jack Mackerel

Ecuador

INSTITUTE FOR AQUACULTURE AND FISHERIES RESEARCH (IPIAP)

ECUADOR ANUAL REPORT; FISHERIES AND BIOLOGICAL ASPECTS OF JACK MACKEREL (*Trachurus murphyi*) IN ECUADORIAN WATERS, 2021

1. INTRODUCTION

One of the most important fisheries in Ecuadorian waters, generating an important income to the country is the small pelagic fishes. 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*) and jack mackerel (*Trachurus murphyi*) are the most important species caught by the purse-seine vessels of various characteristics and tonnage. The smaller boats, the majority of which have wooden hulls and little mechanization, unload on the beaches and/or fishing facilities located in the different fishing ports along the Ecuadorian coast. The product, depending on the species, is mainly intended for the production of fishmeal, followed by canning and direct human consumption (fresh – frozen).

This report presents biological and fishing information on jack mackerel, collected for the small pelagic fish monitoring program of the Public Institute for Aquaculture and Fisheries Research (before National Institute of Fisheries), when this resource is available in Ecuadorian waters.

2. FISHING ASPECTS

a. FLEET

The purse seine fleet operate 20 to 22 days in month, during the period called new moon; fishing trips are daily and the activity begins from 20h00 to 05h00 hour (Aguilar, 1999). The Public Institute for Aquaculture and Fisheries Research in order to study the small pelagic fishes, classified these ships into four different class, related to Total Register Tonnage (TRT): Class I belongs to independent fishermen, the activity is close to the coast. The class II, III and IV belong to fisheries industries, and catch mackerel, *Etrumeus teres*, *Auxis* spp., jack mackerel and occasionally *Cetengraulis mysticetus* and *Opisthonema* spp.; It should be noted when Jack Mackerel is available in Ecuadorian waters, vessels class III and IV can capture this species (related to operational activity, 15 miles), while it is found near the coast, class I and II vessels can capture this species.

b. FISHING ZONES

When Jack Mackerel (JM) is available in Ecuadorian waters the principal fishing zones recorded are in the Gulf of Guayaquil and around Peninsula de Santa Elena; catch



information of JM is recorded in the Public Institute for Aquaculture and Fisheries Research data base since 1984 (Figure 1).

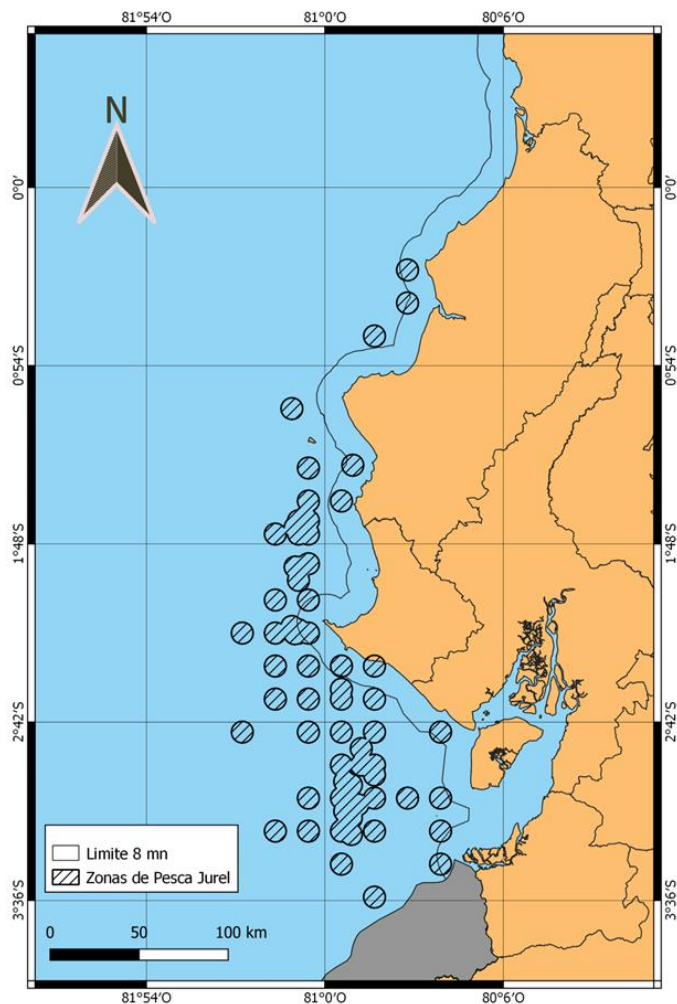


Figure 1. Historical distribution of jack mackerel catches in Ecuadorian waters

c. LANDINGS



Jack mackerel catches are associated as a secondary species in the small pelagic fishery. In 1990 jack mackerel landings was 4 144 t and 1991 a total of 45 313 t; fishing records of this species were variable in subsequent years, reporting in 1995 up to 174 393 t. For the last years the catch records have been minimal in relation to the previous years (Table 1, Figure 2).

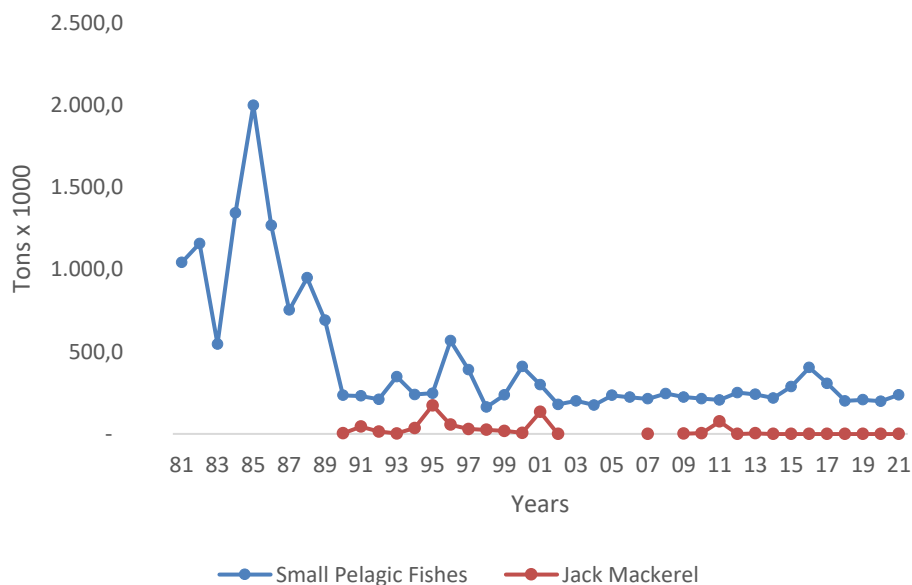


Figure 2. Total annual landing (t) of small pelagic fishes versus Jack Mackerel

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

Years	Small Pelagic Fishes	Jack Mackerel
1981	1.043.115,0	-
1982	1.158.282,0	-
1983	546.863,0	-
1984	1.343.433,0	-
1985	1.998.587,0	-
1986	1.267.501,0	-
1987	753.668,0	-
1988	949.327,0	-
1989	691.373,0	-
1990	234.747,0	4.144,0
1991	230.767,0	45.313,0
1992	211.239,0	15.022,0
1993	349.109,0	2.673,0
1994	239.493,0	36.575,0
1995	247.541,0	174.393,0

1996	566.733,0	56.782,0
1997	391.207,0	30.302,0
1998	163.182,0	25.900,0
1999	237.208,0	19.072,0
2000	410.047,0	7.122,0
2001	299.926,0	133.969,0
2002	179.346,0	604,0
2003	201.039,0	-
2004	175.948,0	-
2005	235.533,0	-
2006	223.182,0	-
2007	213.862,0	927,0
2008	245.791,0	-
2009	224.519,0	1.934,0
2010	214.615,7	5.201,4
2011	206.916,7	75.519,6
2012	251.697,4	106,1
2013	240.896,6	3.666,4
2014	218.534,3	9,1
2015	288.118,5	301,0
2016	404.055,4	24,3
2017	308.339,8	76,8
2018	201.121,5	51,7
2019	208.280,1	2,4
2020	199.309,0	13,9
2021	238.415,1	0,7

3. BIOLOGICAL ASPECTS

a. SIZE STRUCTURE

The size structure ranges from 14 to 66 cm TL, denoting the presence of three groups of size classes (19 - 31, 32 - 51, and 55-65 TL), as well as two strong modal groups (28 and 29 cm TL) (Figure 3).



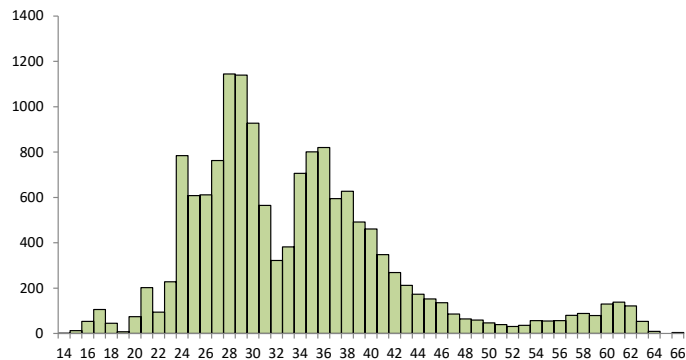


Figure 3. Length composition of Jack Mackerel, registered in Ecuadorian Waters

From June 27 to July 12 of 2022, the 6th cruise of hydroacoustic prospecting was carried out on commercial fishing vessels, in order to continue with the studies of biomass, abundance and distribution of the main species of small pelagic fish in the continental Ecuadorian platform. In this research survey, the presence of jack mackerel was reported, as well as biological samples were taken (Figure 4).

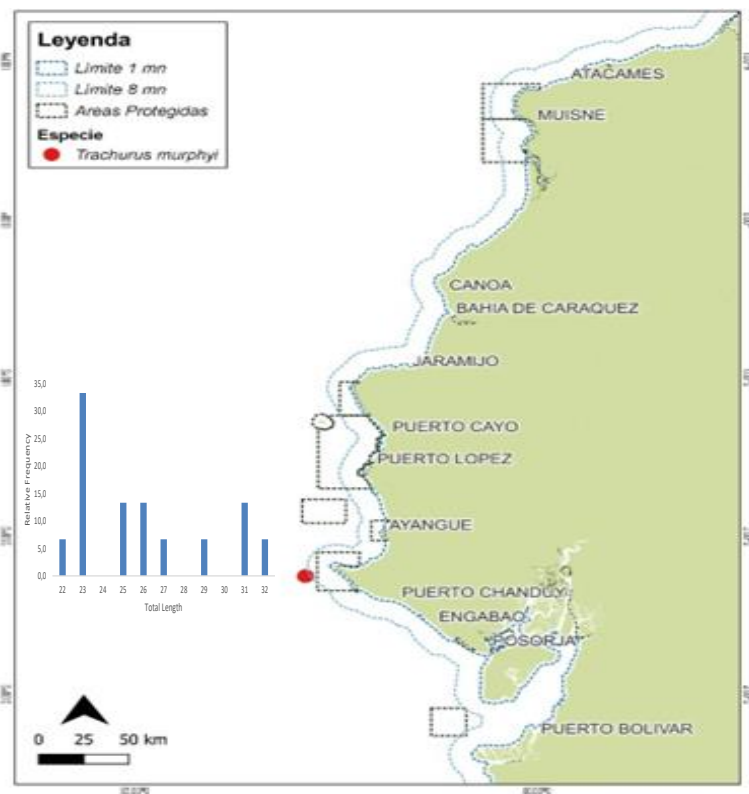


Figure 4. Catches reported in the acoustic research survey, in continental Ecuadorian Waters.