



Aspectos biológicos y pesqueros del pulpo *Octopus mimus*, provenientes de la Isla Lobos de Afuera, Bayovar y Yacila 2021-2022.

Fisheries biological aspects of the octopus *Octopus mimus*, from Isla Lobos de Afuera, Bayovar and Yacila. 2021 -2022

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ABSTRACT

Some biological and fishing characteristics of the octopus resource were determined in three areas of commercial importance for the Piura region, during June 2021 - May 2022. This research was carried out within the framework of the Inter-institutional Cooperation Agreement between Instituto del Mar del Peru (IMARPE) and the REDES-Sostenibilidad Pesquera Association. A total of 70.9 tons were recorded, extracted by semi-autonomous diving (compressor) and free diving, representing 84.8% and 15.2% of the total landings, respectively; In terms of origin, Isla Lobos de Afuera registered the highest volumes (45.6%), followed by Yacila (27.2%), Bayovar (21.7%) and Paita (5.5%).

A total of 1159 specimens (838.7 kg) were analyzed, with a length range between 69 and 230 mm dorsal mantle length (DML) equivalent in weight to 148.2 g and 2367.0 g, with 526 females and 626 males. In general terms, 78.8% were below the minimum extraction weight (PME=1 kg), which was observed for Isla Lobos de Afuera (69.2%), Paita (83.9%) and Bayovar (83.5%). The overall gonadal development of the females showed a predominance of the "Developing" (43.0%), "Immature" (25.5%), "Maturing" (22.3%), "Full Maturity" (5.0%) and "After Maturity" (4.2%) stages. Talks have been held with the immediate stakeholders (artisanal divers) in order to achieve a better understanding of the biology and fishery of this species in order to obtain biological, social and economic inputs, which will allow us to prepare recommendations for the management of its fishery.

STUDY AREA

Three ports and/or coves were considered for the collection of information and recording of landings: Paita, Yacila and Bayovar. The record of landings in Bayovar considered catches from Lobos de Afuera and Lobos de Tierra Islands (Figure 1).

HISTORICAL LANDINGS:

The annual landings of this species in the Piura region between 1997-2022 (preliminary) totaled 3,855.3 tons, a period in which the marked influence of warm events in this fishery can be observed, such as El Niño 97-98 and 2002, years in which 593 tons and 541 tons, respectively, were recorded (Figure 2).

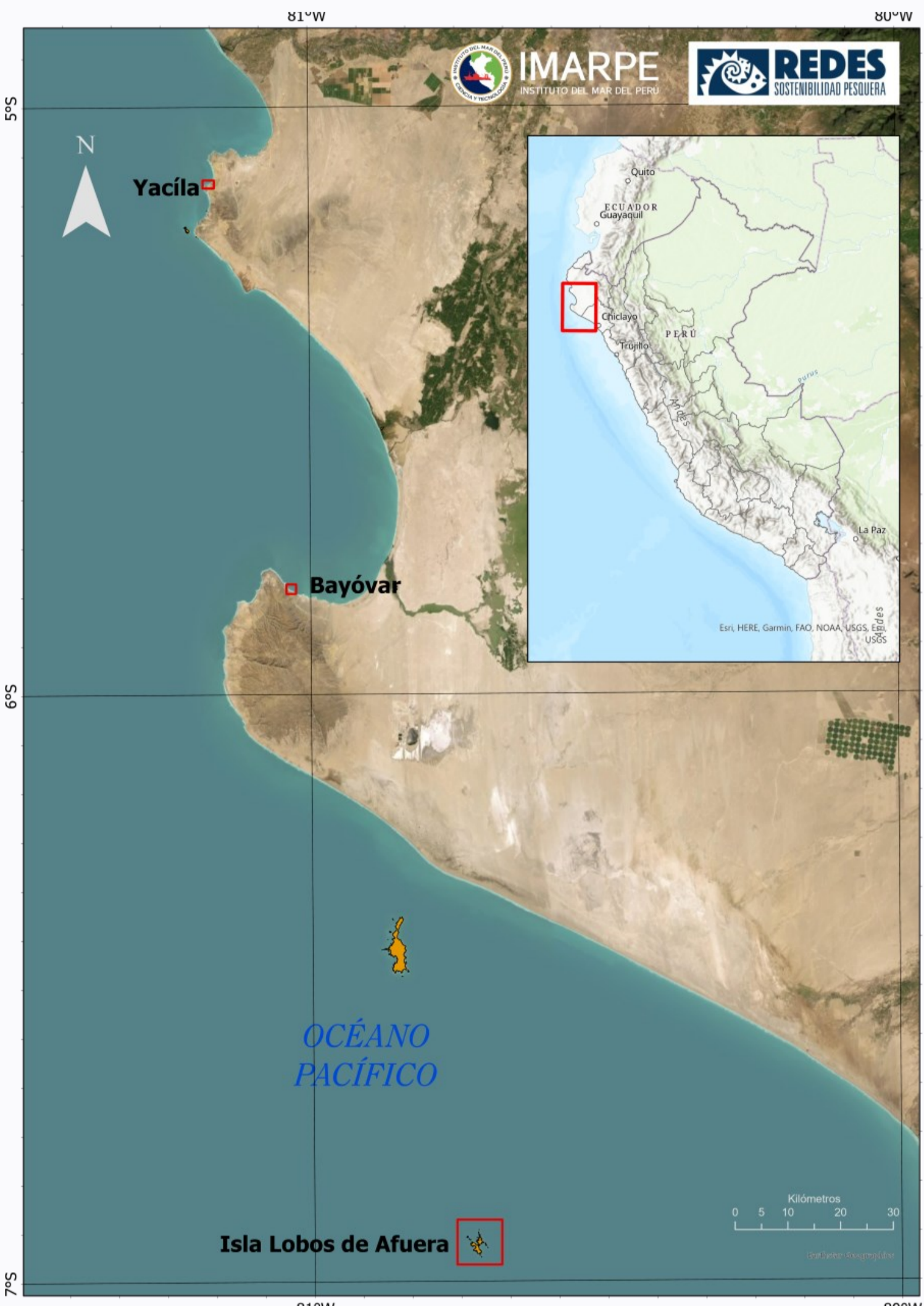


Figure 1. Geographical location of the data collection points.

Considering the landings as of 2019, the year in which the closure on octopus resources is established, 1 216.2 tons were landed in the Piura Region during the 2009-2022 period, representing 31,5% of the volume landed during the historical period (1997-2022), This represents a high value if we take into account that the closed season (RM N° 483-2009-PRODUCE) applied for the Regions of Piura and Lambayeque has been in force constantly up to the present, except for 2015, for which a catch quota of 223,5 tons was established (RM N° 350-2015-PRODUCE).

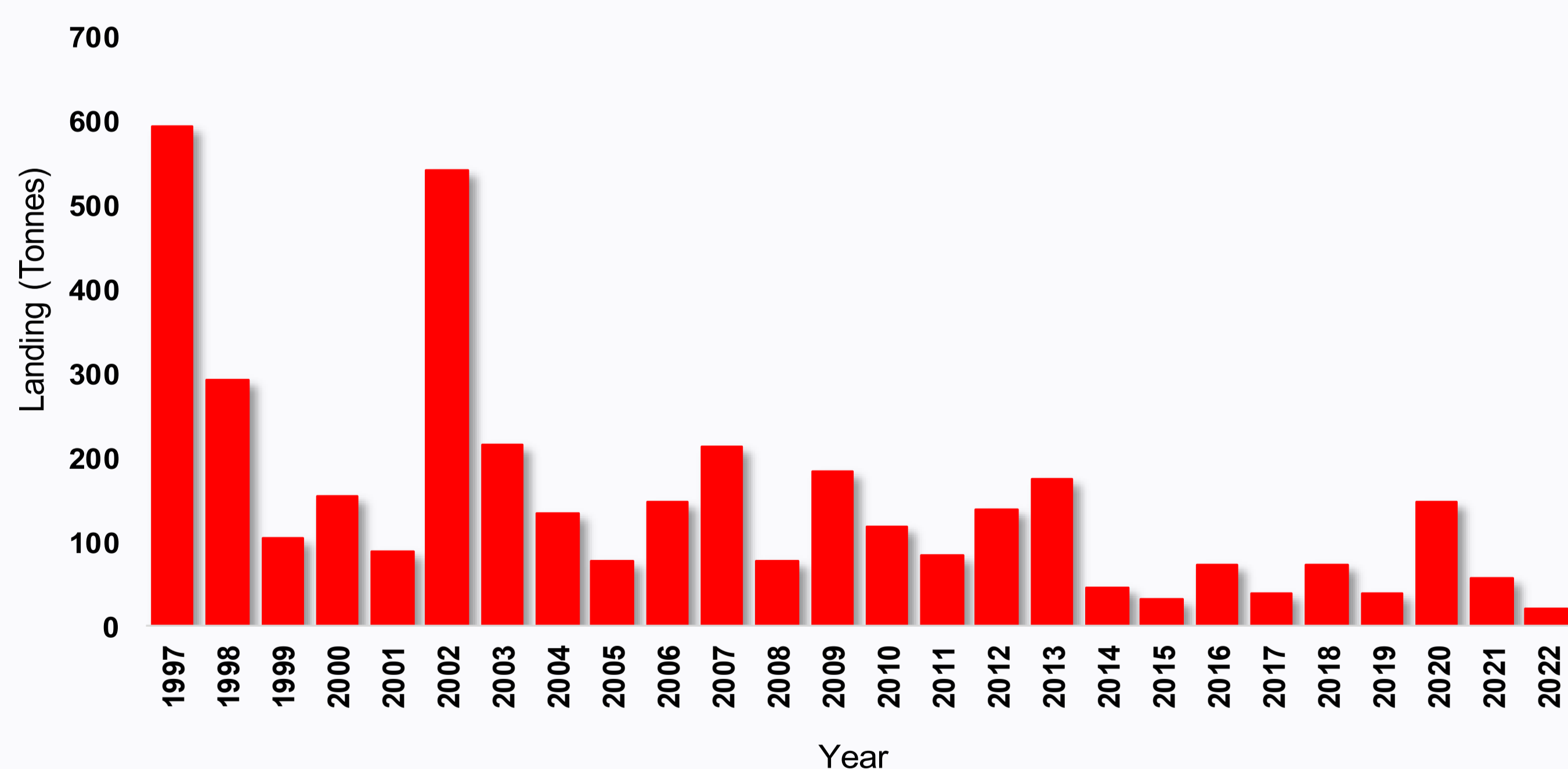


Figure 2. Historical landings of octopus, registered in the Piura Region. 1997-2022

LANDINGS (June 2021 — May 2022)

A total of 70,9 tons was recorded for the study period, the months of highest landings were August 2021 and March 2022, landings showed an increase from June to August 2021, then these values decreased to a minimum value of 2,3 tons in January 2022, by February these values recorded a recovery reaching a maximum of 10,4 tons (March 2022) (Figure 3).

Bayovar registered the highest monthly landings, with peaks in August 2021 (8,2 t) and March 2022 (6,4 t), the same pattern of monthly variation was observed for the total for the study period. The opposite case was recorded in Paita, an area in which the landings record shows an ascending pattern with a maximum value in March 2021 (3,9 t) (Figure 4).

The percentages of landings by zone-month, registered values that varied between 80,5% (October 2021) and 41,7% (January 2022) for Bayovar and percentages between 58,3% (January 2022) and 15,0% (August 2021) for Paita.

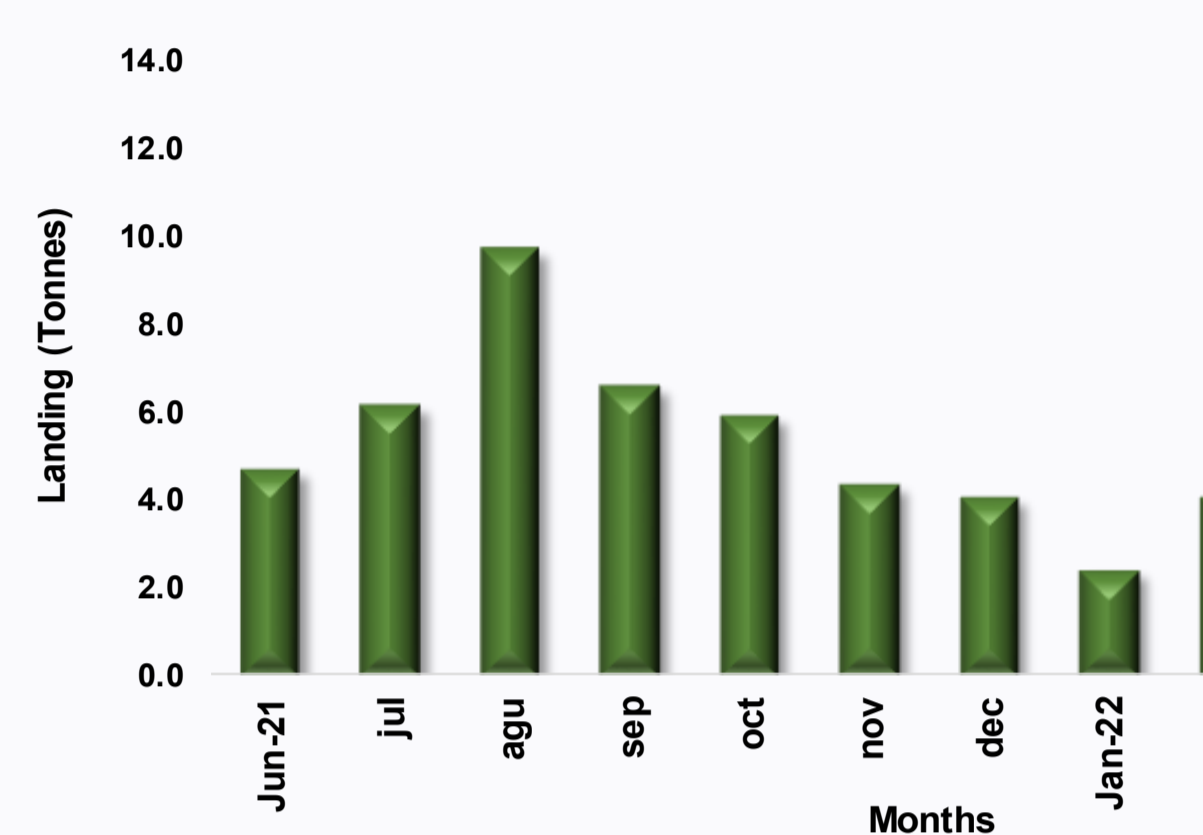


Figure 3. Monthly landings of octopus, recorded between June 2021-May 2022.

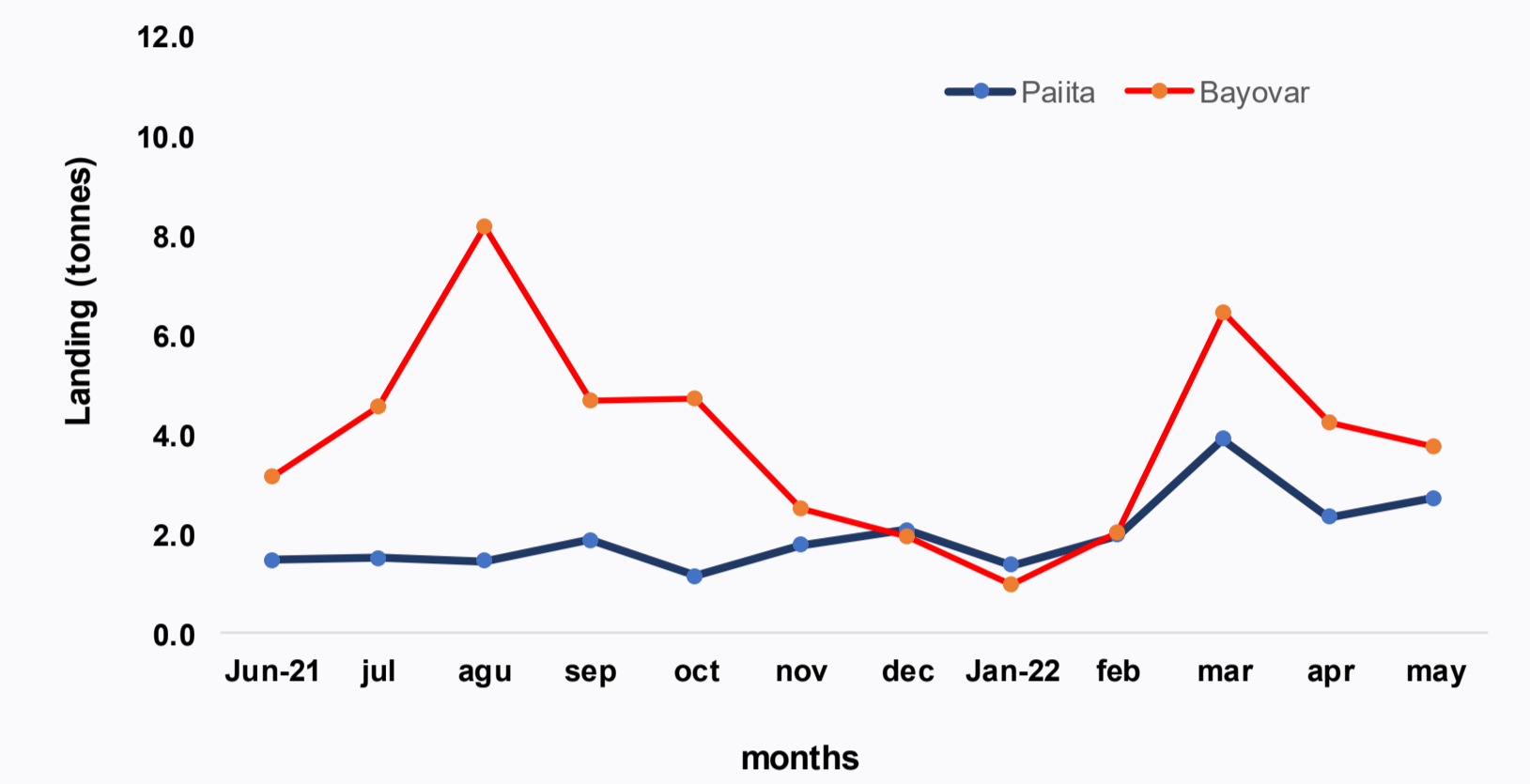


Figure 4. Monthly landings of octopus, recorded in Paita and Bayovar. June 2021-May 2022.

In general terms, 84,8% (60,1t) of the octopus catches were obtained by diving-compressor and 10,8% by diving-lung. In Bayovar, the diving-compressor technique represented 97,1% (2021) and 97,2% (2022) in terms of percentages. In Paita it represented between 64,0% (2021) and 56,7% (2022) (Table 1).

FISHING EFFORT AND CPUE

Fishing effort values were expressed in number of monthly trips and differentiated by the capture technique of the target resource. CPUE values were expressed in kg/trip (Table 1).

Table 1. Monthly landings (kg), fishing effort and CPUE (kg/trip) of the octopus resource, recorded in Paita and Bayovar. June 2021-May 2022.

Months	Buceo-compresora			Buceo-pulmon			Mes	Buceo-compresora			Buceo-pulmon		
	(kg)	travel (n°)	CPUE	(kg)	travel (n°)	CPUE		(kg)	travel (n°)	CPUE	(kg)	travel (n°)	CPUE
Jun-21	1055	26	40.6	420	25	16.8	Jun-21	2806.7	14	200.5	343.4	17	20.2
Jul	913.5	48	19.0	604.5	39	15.5	Jul	4530.5	29	156.2	43.9	6	7.3
agu	751	43	17.5	693.7	71	9.8	agu	8156.7	57	143.1	47.6	10	4.8
sep	1052	60	17.5	822.5	88	9.3	sep	4584.7	52	88.2	84.5	11	7.7
oct	748.1	55	13.6	396.1	42	9.4	oct	4614.6	78	59.2	115.3	13	8.9
nov	1352.5	84	16.1	423.5	44	9.6	nov	2454.0	51	48.1	73.1	14	5.2
dec	1363.3	90	15.1	709.2	81	8.8	dec	1763.4	74	23.8	168.8	26	6.5
Jan-22	847	74	11.4	517.4	56	9.2	Jan-22	932.1	28	33.3	43.7	8	5.5
feb	962.4	60	16.0	1015.5	89	11.4	feb	1989.1	52	38.3	55	7	7.9
mar	2036.2	80	25.5	1878.5	103	18.2	mar	6158.9	99	62.2	284.5	26	10.9
apr	1510.5	64	23.6	836.3	64	13.1	apr	4153.6	84	49.4	93.6	8	11.7
may	1622.8	87	18.7	1090.1	89	12.2	may	3763.6	61	61.7	12.3	4	3.1
Min:	748.1	26	11.4	396.1	25.0	8.8	Min:	932	14	23.8	12.3	4.0	3.1
Max:	2036.2	90	40.6	1878.5	103.0	18.2	Max:	8157	99	200.5	343.4	26.0	20.2

BIOLOGICAL INFORMATION:

In general, the sizes varied between 69 mm and 230 mm LM with a mean of 127 mm, the weights of the specimens were in the range of 134,7 g and 2 398,7 g, with a mean of 723,4 g. The percentage of specimens weighing less than 1 kg (PME) varied between 62,9 % (August 2022) and 97,2 % (January 2022) (Figure 5). It was also observed, considering each study area, that the incidence of specimens weighing less than 1 kg was greater than 50% in all months of the study.

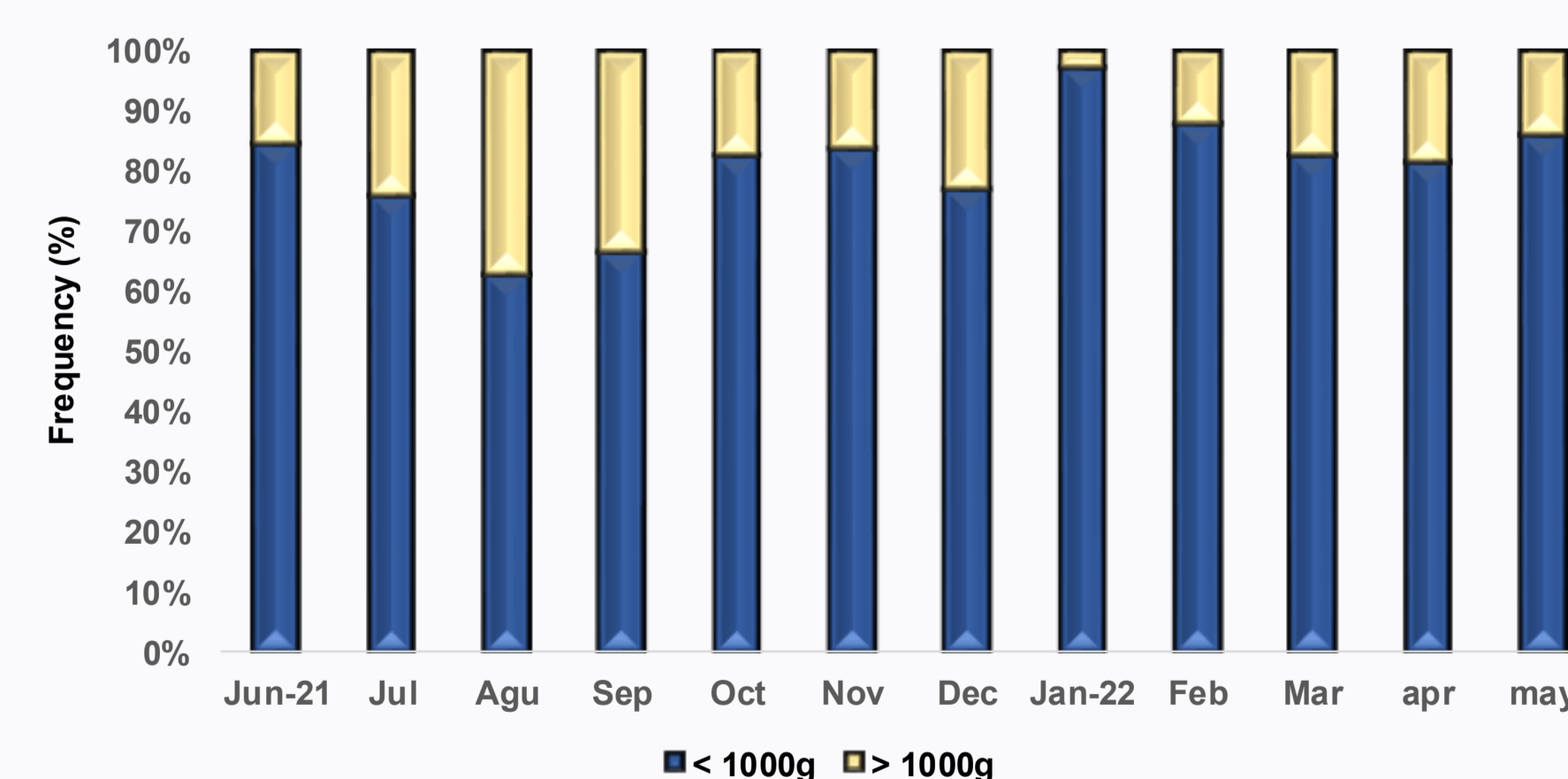


Figure 5.-Percentage variation of specimens smaller than PME (1 kg) of the octopus resource, June 2021-May 2022.

GONADAL MATURITY

In total, females in the "Developing" stage prevailed (43.0%), followed by "Immature" (25.5%), "Maturing" (22.3%), "Full Maturity" (5.0%) and "After Maturity" (4.2%) (Figure 6).

Figure 6. Gonadal maturity condition of the octopus resource, June 2021-May 2022.

