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Introduction

Aquaculture in Angola is a relatively new activity compared to other longstanding producer countries, being only 24 years old. This industry was initiated as part of the governmental programme of economic diversification and national food production plan to address issues such as hunger, unemployment, and poverty, as well as reduce reliance on imports. In Angola, aquaculture is primarily practiced in freshwater environments, typically in small-scale communal ponds where tilapia, catfish species, and European eel are cultivated either individually or in combination for local consumption. However, there has been a recent emergence of large-scale commercial aquaculture with investments and support from countries like Brazil, China, and Israel. Since its inception, aquaculture in Angola has shown consistent growth in terms of production, trade, and academic research, with expectations for continued expansion in the coming years. This work provides insights into aquaculture production in Angola as part of a study conducted by the authors focusing on the detection and identification of microorganisms and parasites in tilapia production, aiming to ensure the health, food security, and sustainability of the industry.

Keywords: Angola, Aquaculture.

Angolan production system characterization

Tilapia (*Oreochromis niloticus*) introduced from Brazil and Israel is the most farmed species in Angola, followed by African catfish. According to data from INE-RAPP 2019/2020, aquaculture activity in Angola used to be restricted to the business sector focused on large-scale commercialization, practiced by entrepreneurs and cooperatives, however, according to FAO, 2018 there is a number of rural independent farmers. In these cases, low-level technology is employed since farmers lack fundamental training and experience (Silva 2015; FAO 2018). Aquaculture in Angola is carried out in ponds, cages, concrete tanks, and polyethylene tanks. In some facilities, different systems and methods are present, including monoculture and polyculture, and water is pumped from nearby rivers or reservoirs. Earth ponds are the predominant tilapia culture facilities in Angola, allowing the adoption of both semi-intensive and intensive systems. The fish produced is sold at the local market (Dombaxe *et al.*, 2015; Silva 2015; Onde & Samuel 2018; FAO 2024).



The industry faces several challenges, such as a lack of feed production capacity, funding, specific biosecurity programs, the need for husbandry training, health management, lack of institutional assistance, and a lack of studies regarding different areas in the production chain (Bondad-Reantaso, 2019; FAO, 2024).

Angolan aquaculture prospect

Table 1. Angola (2020-2030): Aquaculture growth potential from a demand-side perspective, FAO 2024.

Angola	Baseline (2020)	Projection to 2030			
		Population growth only		Population growth + higher per capita consumption	
		Year 2030	2030 compared to baseline	Year 2030	2030 compared to baseline
1. Per capita fish and seafood demand (kg/capita/year)	14.17	14.17	-	24.45	10.28
2. Population (thousand)	33 428	44 912	11 483	44 912	11 483
3. Total fish and seafood demand (tonnes)	473 584	636 268	162 683	1 098 090	624 505
4. Fish and seafood supply from aquaculture (tonnes)	2 062	5 543	3 481	5 543	3 481
5. Supply-demand gap (tonnes)			-159 202		-621 024

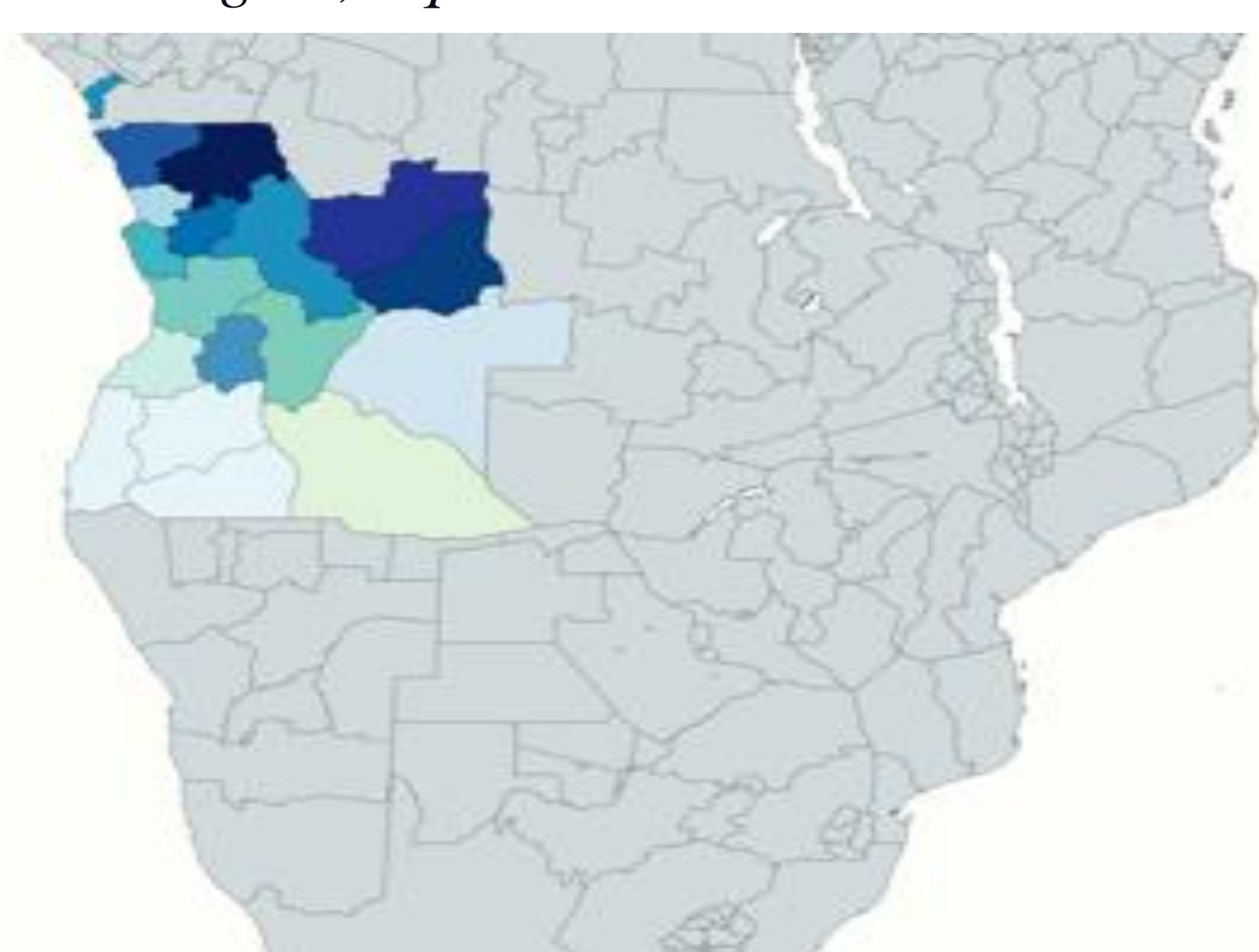
Notes: Fish and seafood includes finfish, crustaceans, molluscs and miscellaneous aquatic animals. 1. Angola's per capita fish and seafood consumption in 2019 (14.17 kg) is assumed to remain the same in the 2020 baseline; its consumption in 2014 (24.45 kg) is treated as the higher benchmark. 2. Population data from UN World Population Prospects (2022 revision). 3. Equal to (1) x (2). 4. According to FAO Fishery and Aquaculture Statistics. Global aquaculture production 1950-2021 (FishstatJ), Angola's aquaculture production increased from 1 339 tonnes in 2017 to 2 808 tonnes in 2021. Following the linear trend during 2017-2021, the country's aquaculture production could reach 5 543 tonnes in 2030. 5. Equal to (4) - (3).

Conclusion

Aquaculture in Angola is a growing industry with significant potential for expansion due to the demand, climate, and favorable territorial qualities for aquaculture production. Therefore, studies of various kinds are necessary to guide the sustainable development of the industry. Research and development play a crucial role in promoting comprehensive studies across all aspects of Angolan aquaculture.

References

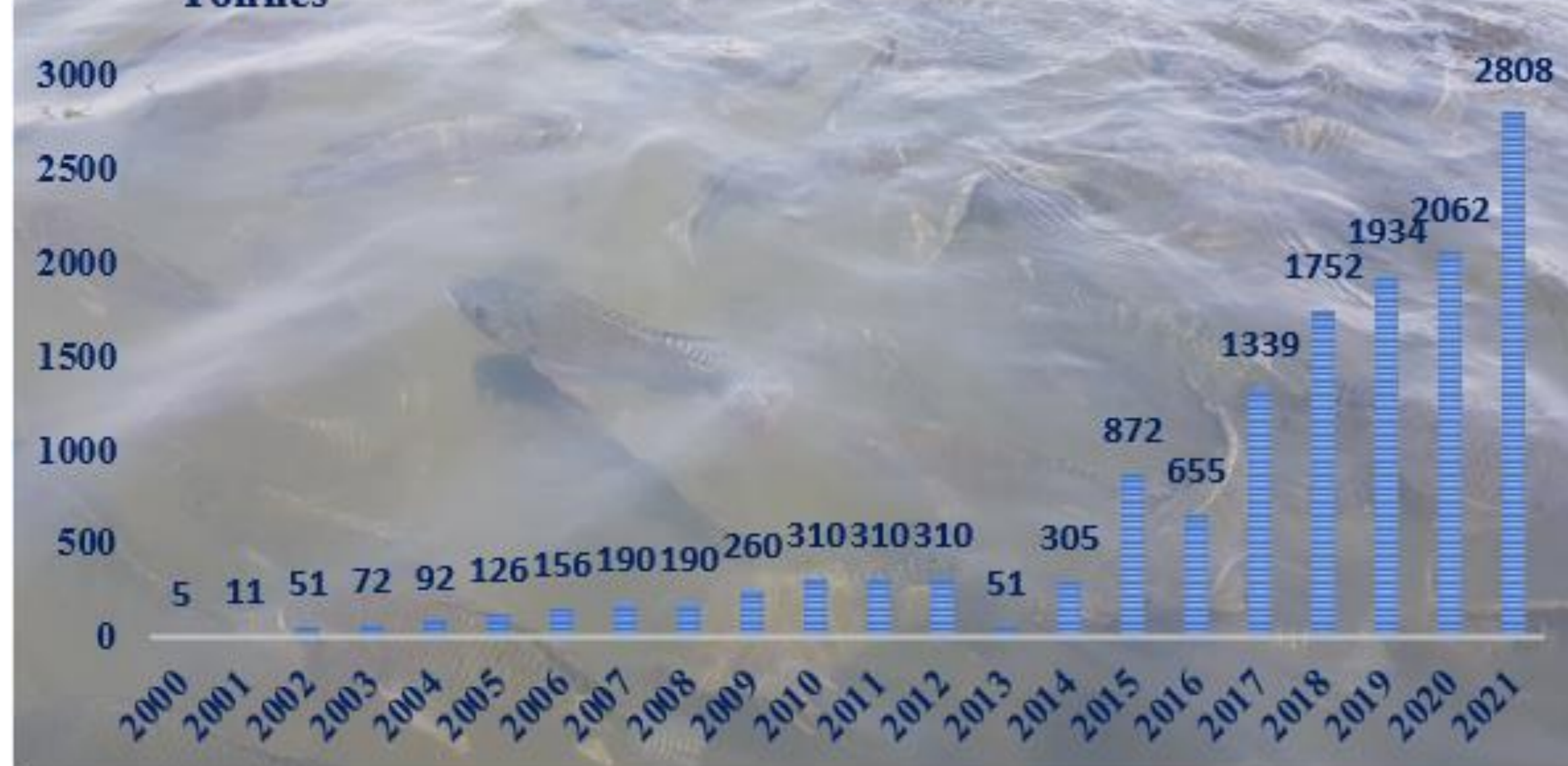
- Anuário Estatístico do Ministério das Pescas de Angola, 2016.
- Bondad-Reantaso, M. G. 2019. Risk Analysis in Aquaculture.
- Dombaxe, D.A. M. *et al.*, 2015. Angola e os Desafios de uma Aquicultura moderna.
- Food and Agriculture Organization of the United Nation, 2007 The Republic of Angola.
- Food and Agriculture Organization of the United Nations, 2014 National Aquaculture sector overview Angola.
- FAO, 2024. Aquaculture growth potential in Angola.
- Instituto Nacional de Estatística. 2019-2020. RAPP - Resultados dos Relatórios da explorações Agropecuárias e Aquícolas empresariais.
- Onde, N. A. & Samuel N. 2018. Angolan Aquaculture.
- Silva, J. E. 2015. PLANNING AND MANAGEMENT FOR SUSTAINABLE DEVELOPMENT OF INLAND AQUACULTURE IN ANGOLA.



Distribution of the 399 Aqua Farms throughout the 18 Angolan Provinces according to INE-RAPP, 2019/2020

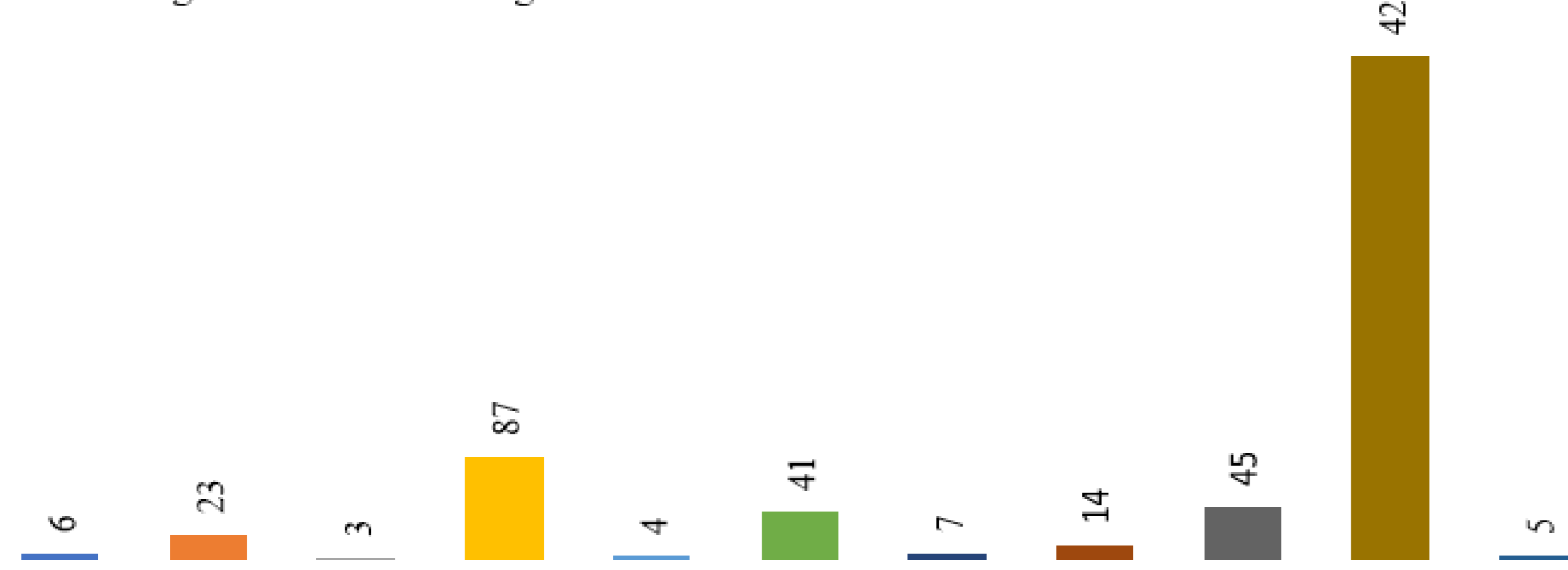
- Uíge 148 Units
- Lunda sul 42 Units
- Lunda norte 37 Units
- Zaire 30 Units
- Cuanza norte 25 Units
- Malanje e Cabinda 21 Units
- Huambo 16 Aqua Units
- Luanda 15 Units
- Cuanza sul 13 Units
- Bié 12 Units
- Bengo 5 Units
- Moxico 4 Units
- Benguela 3 Units
- Namibe, Huíla e Cunene 2 Units
- Quando Cubango 1 Unit

Graph 1. Productive advances in Angolan aquaculture over the years/Tonnes (AEP de Angola, 2016; FAO, 2023 & FAO, 2024)



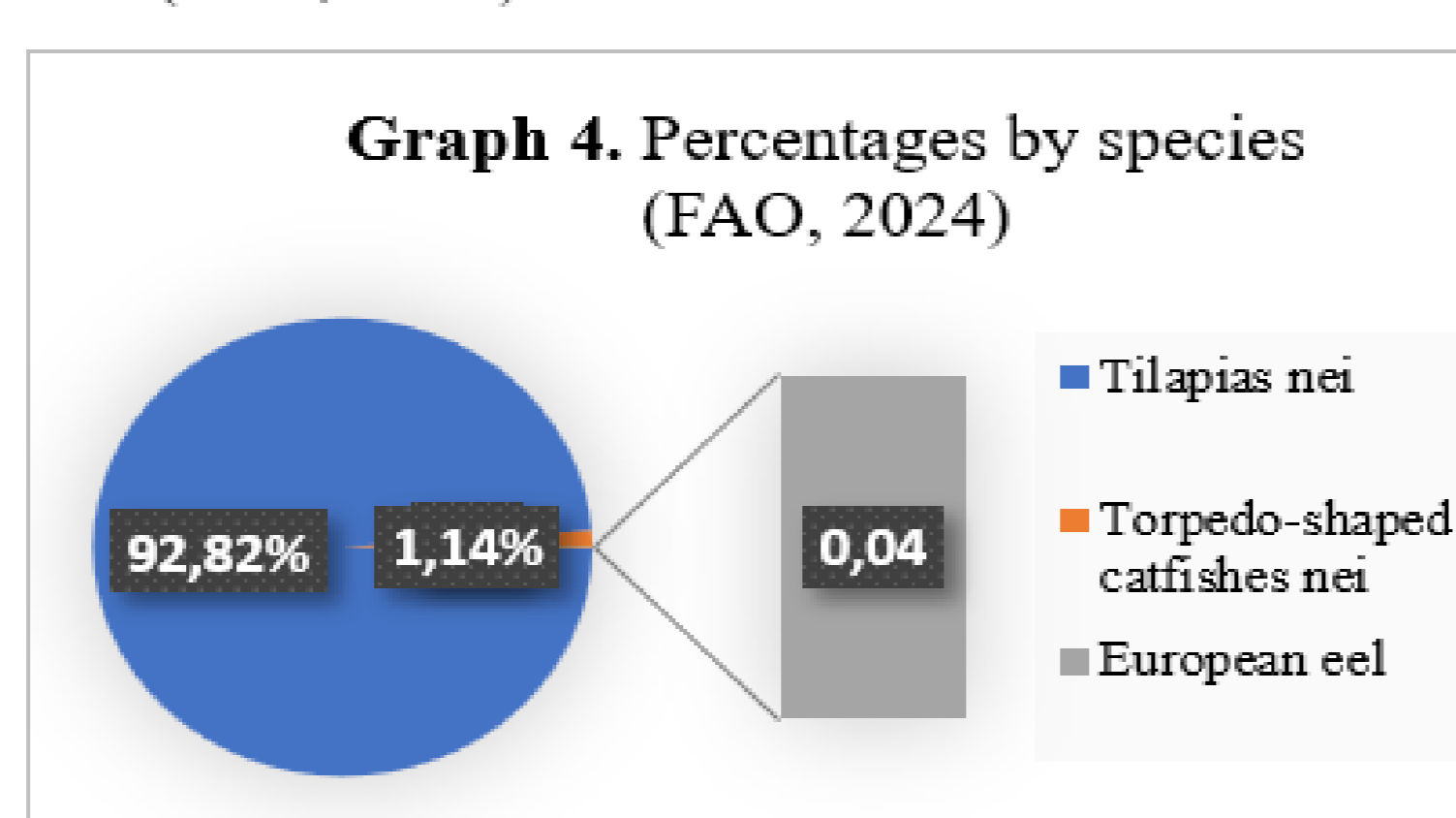
GRAPH 2. AQUACULTURE PRODUCTION IN TONNES DURING 2016 BY PROVINCES DATA AVAILABLE ONLY FROM 11 PROVINCES (AEP DE ANGOLA, 2016).

Legend for Graph 2: Bengo, Huíla, Malange, Cunene, Luanda, Uíge, Cuanza Norte, Lunda Norte, Zaire, Cuanza Sul, Lunda Sul.



GRAPH 3. TOTAL AQUACULTURE PRODUCTION BY SPECIES IN TONNES (FAO, 2024)

Graph 4. Percentages by species (FAO, 2024)



Tilapia: 2775, Torpedo-shaped catfishes: 87, European eel: 45