

OVERVIEW OF CAPTURE FISHERIES IN THE SERIBU ISLANDS

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ABSTRACT

An overview of the condition of capture fisheries in an area can be used as a tool for various parties in managing the area so that the sustainability of fish resources in it is maintained. Writing focuses on describing the condition of capture fisheries in the Seribu Islands waters starting from a general description of the area, to capture fisheries conditions which include the number of fishermen, number and type of fishing gear, actual production of catches, and types of fish caught from fishing operations. Within 5 years (2011–2015), the number of fishermen operating decreased, while the number and types of fishing gear tended to increase. The production of caught fish fluctuated with a downward trend. Fishermen go to sea most intensively during the transitional season compared to the east or west monsoons. The catches obtained are reef and pelagic fish. Fishermen with the aim of fishing for reef fish are closer and shallower than fishermen with the aim of fishing for pelagic fish.

Keyword: *Catches, Fishermen, Fishing gear, Fisheries production*

1. INTRODUCTION

The Seribu Islands are an area with high fisheries and marine potential [1]. With a population of 21,818 people or a density of 2,507.8 people per km², the Seribu Islands is classified as an area with the lowest Human Development Index (IPM) among other districts in DKI Jakarta [2] Spread over 110 islands in Indonesia The Seribu Islands and is estimated to have high marine potential, especially for the development of mariculture [3]. On each island, there are three ecosystems in the form of mangrove, seagrass, and coral reef ecosystems [4]. One of the many existing potentials is coral waters covering an area of 1,730 ha which can be used for mariculture and sea ranching in the Seribu Islands District [5].

There are at least three roles that the capture fisheries sub-sector has, namely capture fisheries as a source of economic growth, a source of food (animal protein), and a source of providing employment [6]. With the hope for fisheries resources as a source of Indonesia's economic growth, fisheries-related regulations play an important role in determining the sustainability of capture fisheries [7]. The main requirement in maintaining the existence of capture fisheries is the sustainable nature or sustainability of the fish resources that will be utilized [8].

An appropriate management system is needed to maintain the sustainability of capture fisheries for both the production of fish and non-fish commodities [9]. Writing is focused on describing the condition of capture fisheries in the Seribu Islands. An overview of the condition of capture fisheries in an area is important to know in order to facilitate related parties in monitoring and managing the capture fisheries sub-sector so that the sustainability of the resources in it can be maintained [10].

2. RESEARCH METHODS

The research was carried out in the coastal and water areas of the Seribu Islands, especially Pramuka Island and Panggang Island, Seribu Islands Administrative District, Jakarta Province. Data collection was carried out in February–March (east season) and November–December (west season) in 2015. The data were processed and analyzed in January–March 2016. The data collected was in the form of primary data from interviews and direct observation of fishermen. Secondary data was obtained based on the results of a literature study from the Seribu Islands Maritime Affairs and Fisheries Service, as well as the Jakarta Provincial Maritime Affairs and Fisheries Service. The data collected includes data on the number of fishermen based on their status, the number of fishing gear operated, and the actual production of capture fisheries in the Seribu Islands. The secondary data used is 5 years of time series data from 2011–2015. Data were analyzed descriptively by describing the location and condition of capture fisheries in the Seribu Islands.

3. RESULTS AND DISCUSSION

3.1 Geographical Location of the Seribu Islands

The Seribu Islands Administrative Regency is located between 5°10'00" - 5°57'00" South Latitude and 106°19'30" - 106°44'50" East Longitude, and is a lowland with an average elevation of ± 1 m above sea level. Based on Governor Decree (SK) no. 171 of 2007, the area of the Seribu Islands is 8.70 km². There are no less than 110 islands in the Seribu Islands area. The boundaries of the Seribu Islands administrative regency based on their geographical position are: a) to the north: the Java Sea/Sunda Strait; b) east: Java Sea; c) south: City of Administrative North Jakarta, City of Administrative West Jakarta, and Tangerang Regency; d) to the west: Java Sea/Sunda Strait. District Administrative the Seribu Islands consist of the North Seribu Islands District (consisting of 81 islands) and the South Seribu Islands District (consisting of 25 islands). Details of sub-districts and sub-districts of Administrative the Seribu Islands are in Table 1.

Table 1 Districts and Sub-Districts in the Seribu Islands Administrative

No.	North Seribu Islands District	South Seribu Islands District
1	Kelapa Island Sub-District	Tidung Island Sub-District
2	Harapan Island Sub-District	Pari Island Sub-District
3	Panggang Island Sub-District	Untung Jawa Island Sub-District

Source: BPS Seribu Islands Administrative Regency[2]

Panggang Island Sub-District has a land area of 62.10 ha with 13 islands in it. The population settlements on Pramuka Island and Panggang Island consist of a population distribution from a total of 13 islands throughout the Panggang Island Village. The topography of almost all of the islands in the Seribu Islands is 0–5% sloping with an average elevation of 0–2 m above sea level. The air temperature range ranges from 27–32°C. The land area changes with the tides with a height range of 1–1.15 m. The speed of the west and east monsoon currents is almost the same, with a maximum speed of 0.5 m/s. The current in the west monsoon is dominant to the east to the southeast, while the current in the east monsoon is dominant to the west. The height of the sea waves in the west season is 0.5–1.175 m while in the east season it is 0.5–1.0 m [2].

The Seribu Islands Waters area consists of oceans, coral islands, clusters of coral in the form of flat reefs and coral reefs, and coral reefs. The geological conditions in the Seribu Islands are formed from limestone or coral rocks, sand and sediments originating from the mainland of Java Island and the Java Sea [11]. The depth of the sea in the Seribu Islands area generally varies within the range of 0–40 m. Waters with a depth of more than 40 m are only found in two places, namely around Payung Island and Pari Island. In the western monsoon, surface water temperatures are in the range of 28.5–30°C. In both seasons, both west and east surface salinity is in the range of 30–34 ppt.

3.2 Conditions of Seribu Islands Capture Fisheries

The dominance of fishing units operating in the Seribu Islands waters is aimed at reef and pelagic fish, due to the condition of the waters being rocky waters. The fishing base in the Seribu Islands is in Panggang Island. Nonetheless, these fishermen came from various regions, namely Bugis, Tangerang, and Palembang. The diversity

of the fishermen's origin areas causes mixed cultures and backgrounds to create a distinct cultural pattern [12]. Fishermen on Panggang Island generally work as full-time fishermen. Full fishermen are fishermen whose lives depend entirely on the fishing profession and do not have jobs or other skills [13]. Full-fledged fishermen are generally owner fishermen, namely fishermen who have their own boats and fishing gear [14]. Owner fishermen operate their fishing gear and employ labor fishermen, namely fishermen who help operate fishing gear [15]. The number of labor fishermen for each fishing gear cannot be ascertained because owners and fishing gear always change [16]. The wages of labor fishermen are determined by dividing the results for all fishing gear that employ labor fishermen. The number of fishermen in the Seribu Islands based on fisherman status is shown in Table 2.

Table 2 The number of fishermen in the Seribu Islands is based on the status of fishermen

Year	Number of Fishermen	
	Fisherman Owner	Labor Fishermen
2010	615	3167
2011	610	3125
2012	609	3049
2013	607	2158
2014	607	2095
2015	602	2179

Source: BPS Seribu Islands Administrative Regency [2]

Based on Table 1, the number of fishermen has not significantly decreased since 2010–2015. The average decrease in the number of fishermen in the Seribu Islands is 3.76%. This is caused by changes in regulations regarding the prohibition of several fishing gears and the transfer of profession from fishermen to marine tour guides.

In contrast to the decreasing number of fishermen, the number and types of fishing gear operated in the Seribu Islands have actually increased over the past 5 years (2011–2015). The various types of fishing gear operated in the Seribu Islands are seine net, gillnets, liftnets, hook-and-line fishery, traps, muroami, and others. The dominant fishing gear operated is hook-and-line fishery and traps.

Table 3 The number of fishing gear operated in the waters of the Seribu Islands

No.	Type of Fishing Gear	Year				
		2011	2012	2013	2014	2015
1	Seine net (Payang)	165	150	152	153	156
2	Gillnet	19	15	15	18	20
3	Liftnet	150	124	24	24	23
4	Hook-and-line fishery	600	604	644	702	784
5	Trap	610	628	628	643	678
6	Muroami	40	23	9	7	3
7	Others	253	242	223	224	254
Total		1837	1786	1695	1771	1918

Source: BPS Seribu Islands Administrative Regency [2]

Table 2 shows that in a period of 5 years, in general the number of fishing gear has increased by 0.5% with the largest increase in 2014 to 2015 of 3.98%. Although the increase in fishing gear in the Seribu Islands tends to be small, this is due to several restrictions on fishing gear such as muroami and other compressor-assisted fishing gear. In addition, the number of fishing rods and traps has increased quite a lot due to the transition from the prohibition of muroami fishing gear.

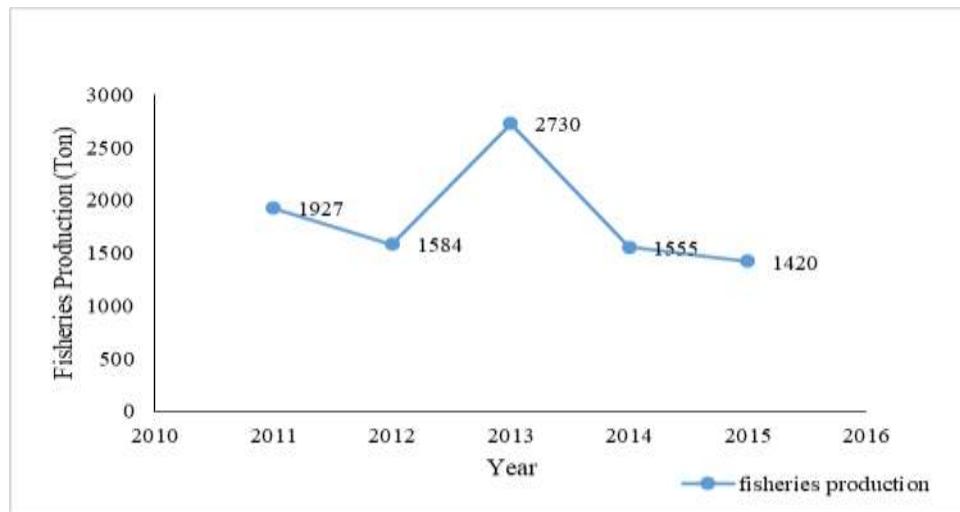


Figure 1 Actual production of capture fisheries in the Seribu Islands in 2011-2015
Source: BPS Seribu Islands Administrative Regency [2]

The actual production (catch) of fisheries over a period of 5 years (2011–2015) shows fluctuations in catches which tend to decrease. From 2011 to 2012, there was an insignificant decrease of 9.7%. Production then increased and reached a peak in 2013, which was 2,730 tons. The 2013–2015 period showed a further decline of 31.6% to reach the lowest production in 2015 of 1,420 tons. The trend of Seribu Islands fishery production can be seen in Figure 2.

The fishing season in the Seribu Islands is influenced by the season at sea. Fishermen generally go to sea during the transitional and eastern monsoons [17]. During the transitional season, water conditions tend to be calm, allowing all fishermen from all fishing gear to go to sea [18]. The transitional season is considered ideal because the risk of catching failure due to natural conditions is very small [19]. Fishermen will intensively go out to sea and catch fish to prepare themselves for not going out to sea when the west season arrives. In the east monsoon, fishermen go to sea with less intensity than during the transitional season. This is a result of the strong wind that blows even though the water currents are relatively calm [20]. This condition will be dangerous for fishing gear fishermen who use boats with sail aids. In the west monsoon, fishermen prefer not to go to sea because of bad water conditions with strong winds, big waves, and strong currents [21]. Poor water conditions can endanger the safety of fishermen and the success of fishing operations because strong currents may cause fishing gear to drift and become entangled.

The distance to the fishing grounds in the waters of the Seribu Islands is determined by the equipment operated and the power of the vessels used. Fishermen operate fishing gear with the aim of catching pelagic fish in open waters with a depth of more than 20 m. Fishermen will operate fishing gear with the aim of reef fish in waters with a depth of less than 20 m. The catch of Pramuka Island fishermen are reef fish such as *Epinephelus* sp., *Caesio* sp., *Lethrinus* sp., *Siganus* sp., *Selaroides* sp., *Ethynnus affinis*, *Decapterus* spp., *Rastrelliger* sp., and various ornamental fish. Several catches in the form of reef and pelagic fish were landed in Muara Angke and Muara Baru. Some other fishermen chose to land fish on Pramuka Island and Panggang Island because the demand for fish was quite high, so the fishermen quickly benefited because the fish they caught sold out immediately.

4. CONCLUSIONS

In a period of 5 years (2011–2015), the number of fishermen in the Seribu Islands waters area decreased, the type and number of fishing gear operated tended to increase, and the production of fish catch showed fluctuations which tended to decrease. Intensive fishermen go out to sea during the transition season, and continue to go out to sea when the east monsoon comes, although the frequency is not as intensive as during the transition season. The distance to the fishing area depends on the type of fishing gear and boat used. The catches obtained are reef and pelagic fish. The aim of catching pelagic fish is carried out in deeper areas compared to the aim of catching reef fish. The Seribu Islands waters area is an area that has good capture fisheries resource potential and should be utilized better with proper management.

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