

IDENTIFICATION OF PELAGIC FISH TYPES AND SUSTAINABLE MANAGEMENT OF CAPTURE FISHERIES AT THE KASIWA MAMUJU FISH LANDING BASE, WEST SULAWESI PROVINCE

Indentifikasi Jenis Ikan Pelagis Dan Pengelolaan Perikanan Tangkap Berkelanjutan Di Pangkalan Pendaratan Ikan Kasiwa Mamuju Provinsi Sulawesi Barat

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ABSTRACT

Fisheries are public resources (open access), or public resources, which can lead to overfishing or underfishing if not managed properly. This research aims to analyze fishing management at the Kaswa Mamuju Fish Landing Site (PPI) and focuses on aspects of sustainability, efficiency and safety of fishermen. This research involves collecting primary data through interviews and field observations as well as secondary data from related organizations. Based on the Kasiwa Mamuju Fish Landing Base survey, small pelagic fish are among the types of fish landed by PPI compared to other types of fish, the pelagic fish is tuna. The length of the fish taken varies depending on the species, and varies between 17 and 110 centimeters. In general, the fish landed at the Kasiwa Mamuju fish landing site are large and immature fish are not caught. The number of fishing boats is mostly motorboats and the number continues to increase every year until it reached 2,352 in 2017, 2,412 in 2018, and 2,575 in 2019. Therefore, the types of motorboats are increasing every year. The number of motorized vessels also increases every year, reaching 647 vessels in 2017, 650 vessels in 2018, and 897 vessels in 2019. There was a decrease in the number of non-motorized vessels in 2019, from 611 vessels in 2018 to 574 vessels.

Keywords: Capture Fisheries Management, PPI Kasiwa, Mamuju, West Sulawesi

ABSTRAK

Perikanan merupakan sumber daya publik (akses terbuka), atau sumber daya publik, yang dapat menyebabkan penangkapan ikan berlebihan (overfishing) atau penangkapan ikan kurang (underfishing) apabila tidak dikelola dengan baik. Penelitian ini bertujuan untuk menganalisis pengelolaan penangkapan ikan di Tempat Pendaratan Ikan (PPI) Kasiwa Mamuju dan fokus pada aspek keberlanjutan, efisiensi dan keselamatan nelayan. Penelitian ini melibatkan pengumpulan data primer melalui wawancara dan observasi lapangan serta data sekunder dari organisasi terkait. Berdasarkan survei pangkalan pendaratan ikan kasiwa

Mamuju, ikan pelagis kecil termasuk jenis ikan yang didaratkan oleh PPI dibandingkan dengan jenis ikan lainnya, ikan pelagis adalah tongkol, layang, tuna. Panjang ikan yang diambil bervariasi tergantung spesiesnya, dan panjangnya bervariasi antara 17 dan 110 cm. Pada umumnya ikan yang mendarat di tempat pendaratan ikan Kasiwa Mamuju berukuran besar dan ikan yang belum matang tidak ditangkap. Jumlah perahu nelayan tersebut sebagian besar berupa perahu motor dan jumlahnya terus meningkat setiap tahunnya hingga mencapai 2.352 buah pada tahun 2017, 2.412 buah pada tahun 2018, dan 2.575 buah pada tahun 2019. Oleh karena itu, jenis perahu motor semakin bertambah setiap tahunnya. Jumlah kapal motor pun mengalami peningkatan setiap tahunnya, yaitu mencapai 647 kapal pada tahun 2017, 650 kapal pada tahun 2018, dan 897 kapal pada tahun 2019. Terjadi penurunan jumlah kapal tidak bermotor pada tahun 2019, dari 611 kapal pada tahun 2018. menjadi 574 kapal.

Kata kunci: Pengelolaan Perikanan Tangkap, PPI Kasiwa, Mamuju, Sulawesi Barat

INTRODUCTION

Capture fishing plays an important and strategic role in Indonesia, as evidenced by at least three roles: as a source of economic growth, a source of food, especially animal protein, and providing employment opportunities (Sanger *et al.*, 2019). Fishing creates jobs and acts as a safety net when other sources of income disappear (Bene *et al.*, 2007). The importance of catching fish is not only felt in Indonesia, but also in several countries in Asia, Europe and America. This fact shows that in several countries in Europe and America, the fisheries sector is a source of energy and a driver of regional economic growth. In general, marine resources can be classified into two groups, namely renewable biological resources and non-renewable abiotic resources (Fauzi, 2010). Fishery resources are natural resources that can be renewed and restored. The recovery rate is highly dependent on the carrying capacity of the environment. If exploited beyond maximum sustainable limits, this can put enormous pressure on fish stocks and even lead to fish stock extinction. Information regarding the potential and distribution of fishery resource types is very important in planning fisheries development (Koniyo, 2015).

Small-scale pelagic fish stocks, as well as large-scale pelagic fisheries, are one of the fisheries and marine resources that need to be managed sustainably to provide optimal benefits now and in the future. Sustainable business means using resources efficiently and rationally. To realize the efficiency of extraction of large and small pelagic fisheries resources, it is necessary to evaluate fisheries resources by considering the characteristics of large and small pelagic fisheries resources, determine the economic value of the resources accurately, and determine whether overestimation is necessary.

Optimization of potential stocks of small pelagic fish and large pelagic fish is carried out on a large scale, with production levels mainly determined by input (effort), size and growth of the fishing fleet, and type of fishing gear. The technology used and the level of expertise available (use of advanced technology). Although these optimization efforts contribute to regional income, the amount of uncontrolled exploitation (overexploitation) and the use of non-environmentally friendly fishing equipment also contributes to income and resource unsustainability. The sustainability of capture fisheries development not only faces the problems of overfishing and overcapacity, but according to several studies, the sustainability of capture fisheries also faces challenges such as climate change, pollution, resource degradation, and being affected by various negative impacts. pressures such as fluctuations in the availability of fresh fish. Border conflicts increase commodity prices, increase the vulnerability of fishermen and the unsustainability of capture fisheries (Lieng *et al.*, 2018). This is supported by Bappenas (2014) which states that the development of sustainable capture fisheries in Indonesia is caused by low product competitiveness, lack of domestic market development, and access to financing for important business development issues, such as

restrictions. Fishermen's skills are still low, illegal activities, unregulated and unreported fishing (IUU), excessive fishing, systematic monitoring capacity is still weak, and capture fisheries data collection systems are still weak.

West Sulawesi is located around the equator between 0° 45' 59" to 3° 34' 0" N latitude and 118° 48' 59" to 119° 55' 06" E longitude, making it a very strategic province. West Sulawesi has a land area of 16,787.18 km², an ocean area of 20,342 km², a coastline length of 677 km, and a total of 40 small islands (BPS SulBar, 2021). West Sulawesi is located in the fisheries management area (WPP.713). International sea route (ALKI-II) with a sea area of ±20,342km². Geographically, West Sulawesi borders directly on the Makassar Strait to the west. The potential catch is 67,149 tons per year, but only around 10 percent has been utilized (DKP Provincial SulBar, 2016).

Mamuju Regency is one of the districts in West Sulawesi Province which is located at Latitude coordinates 0° 53' 10" – 2° 54' 52" S and Longitude 118° 54' 47" – 120° 05' 35" E. Mamuju Regency has an area of 4,954.57 km², administratively divided into 11 sub-districts, with a total of 88 villages and 13 sub-districts (BPS Mamuju, 2021). 4,444,415 km of sea area directly borders the Makassar Strait and has fishing potential. The catchment area of the Mamuju Hall is 13,331 hectares, the production volume is 82,305.49 tons, the fishery catch is 20,765.37 tons, and the fish cultivation product is 61,540.12 tons (BPS Mamuju, 2021). The number of non-motorized boats was 574, outboard motorboats were 2,575, and motorboats were 897, bringing the total to 4,046 (BPS West Sulawesi 2021). Mamuju Regency in West Sulawesi has various types of fishing gear used by local fishermen. Fishing equipment commonly used in Mamuju Governorate includes traditional methods and modern methods. Fishing units in Mamuju prefecture consist of fishing gear, traps, gill nets, purse seines, nets, gill nets, etc.

METHODS

Research was conducted at the kasiwa fish landing base, Mamuju Regency, from February to March 2024, West Sulawesi Province.

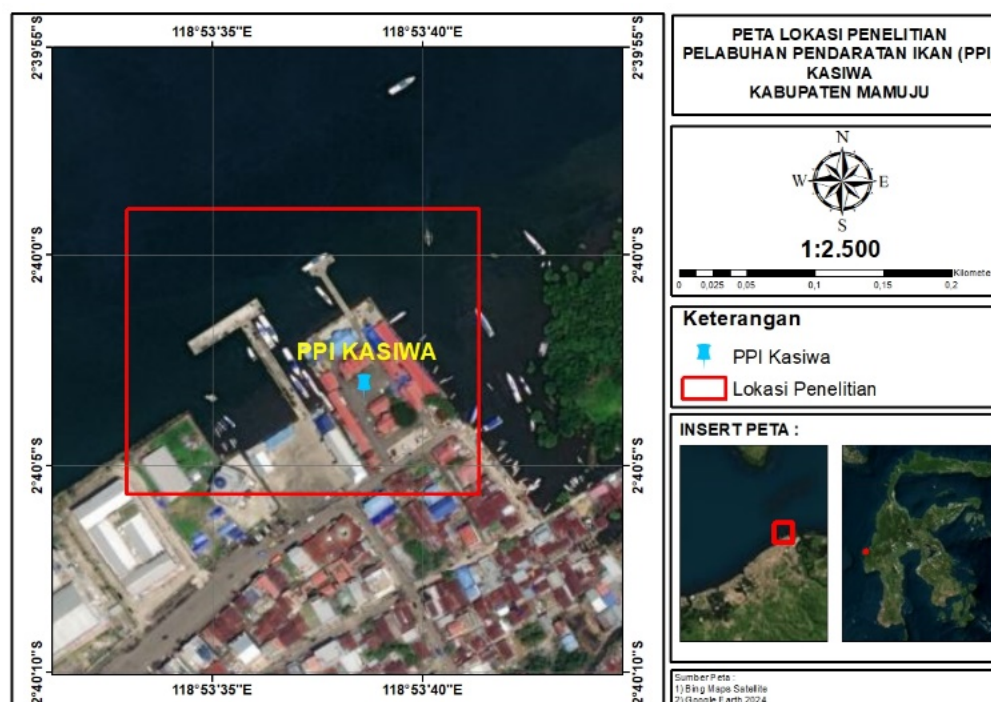


Fig 1. Research Location Map

Data collection technique

The data collection method used in this research was direct observation using counting techniques for 30 types of fish four times during surveys of fish landed at the Kashiwa Mamuju landing station, marine product sales activities, and interviews with fishermen. Interviews were conducted with fishermen and fish collectors to obtain additional data regarding fisheries management in the Mamuju area. Apart from that, several other data were also obtained from personnel at the Kasiwa Mamuju landing station and related agencies.

Pelagic fish sampling at the fish auction at the Mamuju kasiwa landing site. The types of fish studied in this research are fish with complete and different morphological dimensions. The samples are then photographed and recorded to identify the type of fish. Identification of pelagic fish species refers to identifying the morphological characteristics of the fish's body using a fish identification book. The data obtained was calculated using data analysis techniques and explained in the form of a discussion. Data analysis was carried out using MS software. Excel is created and presented in the form of illustrative images and graphs to clarify research results and make them more interesting.

RESULT

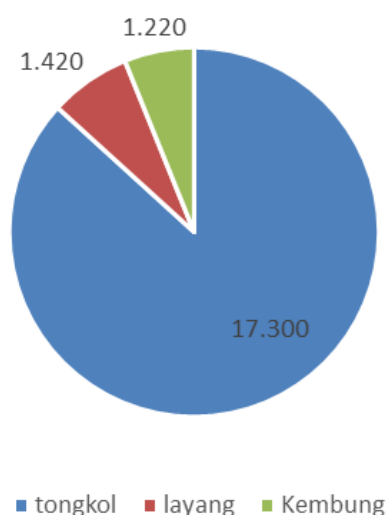


Fig 2. Types of Pelagic Fish

Table 1. Mamuju Regency Pelagic Fishing Vessel Data

Pelagic Fishing Vessel Data			
Years	2017	2018	2019
Motorboat	647	650	897
Outboard Motor Boat	2352	2412	2575
Boat Without Motor	574	611	574

Table 2. Mamuju Regency Capture Fisheries Production

Mamuju Regency Capture Fisheries Production				
Years	2017	2018	2019	2020
Capture Fisheries at Sea	11862	13675	15234	19333

DISCUSSION

Mamuju Regency is one of the districts in West Sulawesi which is located at latitude coordinates $0^{\circ} 53' 10'' - 2^{\circ} 54' 52''$ South Latitude and Longitude $118^{\circ} 54' 47'' - 120^{\circ} 05' 35''$ East Longitude. The area of Mamuju Regency has an area of 4,954, 57 km² and administratively divided into 11 sub-districts, with a total of 88 villages and 13 sub-districts (BPS Mamuju, 2021). Mamuju Regency has a coastline of 415 km along the Makassar Strait. Mamuju Regency has a catchment area of 13,331 hectares and a production volume of 82,305.49 tonnes consisting of 20,765.37 tonnes of fishery products and 61,540.12 tonnes of fishery cultivation products (BPS Mamuju, 2021, 2,575 outboard boats, and 897 motorboats, total 4,046 (BPS West Sulawesi 2022).

Based on the survey results at the kasiwa fish landing base station in Figure 2, the PPI fish type consists of small pelagic fish that are landed. The most numerous types of small pelagic fish compared to large pelagic fish. The size of the fish landed varies depending on the species, but the length ranges from 17cm to 110cm. Fish landed at the Kasiwa fish base landing station were generally of good size, and no immature fish were caught. Research shows that the types of fish that are commonly caught during fishing activities are the types of fish that are the target of fishing. The types of fish caught included 17,300 tuna, 1,420 flying fish and 1,220 mackerel. Interviews conducted with pelagic fish collectors showed that fishermen prioritize small pelagic fish because of the high demand from the public compared to other types of fish. Thus, it is evident from the data that tuna has significant economic value in the Mamuju community compared to flying and mackerel fish.

Table 1 shows that the main type of fishing boat is outboard motor boats, and the number continues to increase every year, namely from 2,352 boats in 2017 to 2,412 boats in 2018 and increasing to 2,575 boats in 2019. This means that the number of types of motor boats is increasing every year. The number of motorboats has also increased every year since 2017 to 647 ships, in 2018 there were 650 ships, and in 2019 there were 897 ships. Meanwhile, for ships without engines, the number of ships in 2019 decreased by 574 compared to 611 in 2018. Based on survey results, fisheries production, fishing, fisheries and marine services in Mamuju Regency, West Sulawesi have increased every year. You can see it in Table 2.

Table 2 shows that capture fisheries production in Mamuju Regency is increasing from year to year. It can be seen that capture fisheries production reached 11,862 tons per year in 2017 and increased to 19,333 tons per year in 2020. The table shows that catches in the Mamuju area are increasing from year to year. The main fishing gear used by Mamuju fishermen is pocket fishing compared to other fishing gear. The criteria for environmentally friendly fishing techniques are that they are highly selective, do not destroy habitats, do not harm fishermen, produce high quality fish, the product does not harm consumer health, and the catch has minimal waste and minimal waste. impact on the diversity of biological resources. We are socially responsible and do not catch protected or endangered species. A fisherman is someone who carries out fishing activities on a fishing boat, from a fixed platform or other floating device, or on the beach. According to Dahuri (2000), sustainable development is basically a development strategy that sets a kind of threshold for the level of utilization of natural ecosystems and the natural resources they contain. This threshold is not absolute, but is a flexible limit that depends on technological and socio-economic conditions in the use of natural resources and on the capacity of the biosphere to accept the impacts of human activities. In other words, sustainable development is a strategy to utilize natural ecosystems in a way that does not reduce their ability to benefit human life. Broadly speaking, the concept of sustainable

development has four dimensions: environmental, socio-economic-cultural, socio-political, legal and institutional. There are at least three main factors that require special attention in the utilization of marine biological resources. These things are: environmentally friendly, providing sustainable economic value, and social acceptance for local communities. The Asian Productivity Organization (2002) states that sustainable fishing standards ensure that fishermen use their fisheries in ways that are environmentally friendly, technically feasible, and economically profitable, including to ensure food security and continue to do so. According to Gopakumar (2002), the principle of sustainable management is the long-term use of fisheries resources through the conservation of biological and ecological characteristics, including conservation and profit sharing. Therefore, sustainable use of marine fisheries resources must be achieved through responsible fisheries management and environmentally friendly technology. Therefore, everyone involved must have a green paradigm. In this mission, green technology must be transformed into green technology.

CONCLUSION

Based on survey results at the kasiwa fish landing base, the PPI fish type consists of small pelagic fish that are landed. This type of small pelagic fish is the most abundant compared to other fish. The size of the fish landed varies depending on the species, but the length ranges from 17cm to 110cm. Fish landed at the Mamuju Kashiwa Landing Station were generally of good size, and no immature fish were caught. The main fishing vessels are outboard motor boats, with an increase of 2,352 in 2017, 2,412 in 2018, and 2,575 in 2019. This means that the number of types of motor boats is increasing every year. The number of motorboats has also increased every year since 2017 to 647 ships, in 2018 there were 650 ships, and in 2019 there were 897 ships. Meanwhile, for ships without engines, the number of ships in 2019 decreased by 574 compared to 611 in 2018. The government should pay more attention to the facilities and infrastructure of the Mamuju kasiwa fish landing station in West Sulawesi. Fishermen experience problems in processing fish at PPI because the facilities are not functioning.

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