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Original research article

Analysis Potency Grouper Fish Resources (*Plectropomus leopardus*) in Waters Regency Kolaka Southeast Sulawesi, Indonesia

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ABSTRACT

Grouper fish is one _ source of Power ecosystem reef corals that have marked economic highs. The objective Study is to analyze the potency source of grouper fish power in Regency Kolaka. A study was conducted in Regency Kolaka, a coastal area, and eyed fishermen's livelihood as fisherman grouper fishermen. Study This is held for eight months, i.e. April - November 2022. Grouper fish in the waters of Regency Kolaka has experience excess catch by 70%. Based on these data, effort management needs to be done immediately for the continuity of grouper fish resources in the waters.

Introduction

Grouper fish is one source of Power ecosystem reef corals that have marked economic highs (Burgos & Defeo, 2016; Mendoza Larez, 2016; Nelson, 2019). Selling point size consumption in condition life, i.e. US$ 30-50/kg, and exported to several countries such as Singapore, Japan, Hong Kong, Taiwan, China, Malaysia and the United States. Prices in the domestic market for grouper ornamental fish size (4-5 cm) Rp. 7,000 - per head, at the level fishermen IDR 70,000–150,000 per kg. Grouper in condition life for rare species valued far more expensive (Akbar & Sudaryanto, 2015).

Grouper fish trade in Indonesia is proliferating; 1995 amounted to 3,800 tonnes and increased in 2020 by 441,000 tonnes (Ministry of Maritime Affairs and Fisheries 2019). Based on data from the Director General Processing and Marketing of Fishery Products (P2HP) mentions, export grouper in 2010 reached 6,340 tonnes. Indonesia supplies more than 50% of the reef fish catch life to Hong Kong and Singapore and is registered as an exporting country, mainly grouper _ duck (*Cromileptes altivelis*) and giant grouper (*Epinephelus lanceolatus*) (Lau & Parry-Jones, 2012).

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This fish is often found associated with coral reefs (Yuliana, 2022). In conservation areas, coral fish are better protected than outside conservation areas. Better management is in conservation areas with more targeted and controlled policies (Adimu, 2018).

Tadjuddah (2016) states that high demand _ results in grouper experiencing enough pressure _ and weight, and some areas of the world have experienced overfishing. International Union for the Conservation of Nature and Natural Resources (IUCN) grouper including in threatened species _ extinct. Research results in several regions in Indonesia (Sari, 2013) reported that the Islands' thousand utilization source grouper power _ had exceeded the level of optimal utilization recommended (29,940 kg/ year). The same thing was obtained in the water Bay Lasongko Regency Buton Southeast Sulawesi, with level utilization has exceeded optimal conditions > 0.5 (Prasetya, 2014). Generally, fishery grouper in Indonesia (Java, Sumatra and Sulawesi) already experience high-pressure source power _ which shows signs significant from over-exploitation.
Activity fishery catches grouper sun in the district Kolaka from 2008 to 2011 experienced a decline in production (Department of Fisheries Regency Kolaka 2019). partly big fishing in the waters Kolaka done by fishermen scale small (Ramlah et al., 2022). Description above _ can be understood that the management and utilization of resource fishery catch is an important thing and is _ the obligation of all stakeholders interests (stakeholders); taking a role in the management business fishery catch the effort fisheries managed by fishermen _ can increase well-being, so the availability of resource fishery can be managed in a manner sustainable (sustainable), with thereby needed something purposeful research_To analyze potency sustainability in waters Regency Kolaka Southeast Sulawesi Province.

Research methods

Time and place

The research location was in the waters of Regency Kolaka, a coastal area that eyed fishermen's livelihood as fisherman grouper fishing. The study will be implemented over eight months, from April 2022 to November 2022. The research location can be seen in Figure 1.

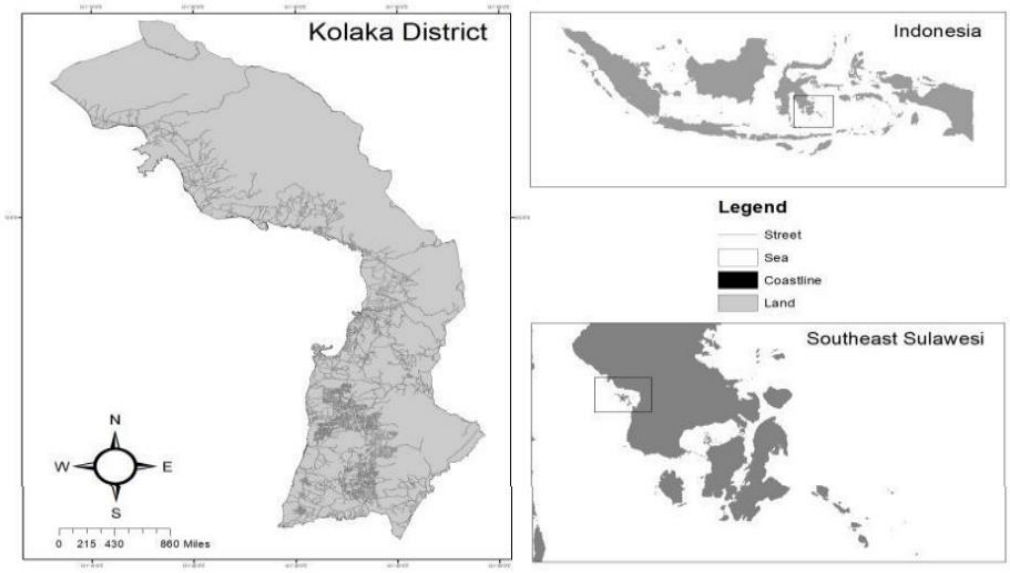

Figure 1. Map of Kolaka District

Types and Data Collection Techniques

The type of data used consists of primary and secondary data. Primary data was obtained directly at the location of grouper fishing _ as well as interviews with the informant key: secondary data, namely the data obtained from agencies related to grouper potential. As well as instruments data collection used in research: guidelines interviews and cameras For documentation supporters.

Data Analysis

Analysis potency sustainability and level utilization of grouper fish use analysis descriptive and MSY analysis.

Result and Discussion

Coastal communities in the District Kolaka have been using grouper for a long time (*Plectropomus leopardus*) as a source of food and income along Mark sell high. Arrest intensive will result in pressure on the source power in a stock local increase in the number of cases can cause overfishing. For do management needs information based on strong scientific and analytical _ something stock For make steps proper management (Hernandez & Seijo, 2013).

Report results in service fishery Regency Kolaka mention production commodity fishery catch grouper experienced a decline from 2015 to 2020 of as much as 45%. This _ can be caused by a lack of supervision and control sources, resulting Power _ happening a decline in fish stock.

Potency source Power marine and fisheries Regency Kolaka Enough big Good potency source Power fishery sea, land, and aquaculture. It has 13 (three twelve) small fruit islands, namely: P. Padamarang, P. Lambasina Kecil, P. Lambasina Besar, P. Buaya, P. Pisang, P. Maniang, P. Lemo, P. Kukusan, P. Lamburoko, It P. Campea, P. Ijo It, It P. Lima, P. Batu Mandi, with whole expansive islands the namely 4,384 Ha. Condition It is very supportive of the development activity sector fishery that captures and cultivation organism sea like the cultivation of shell pearls on the island Lambasina small and island Lambasina significant, as well sectors other like mining and tourism like on an island pada marang as area park tour natural sea. Based on potency source, Power fisheries in the District Kolaka can see in a manner complete in Table 1.

Table 1. Potential source Power fisheries and levels utilization in the District Kolaka year 2021

No	Potency	guess Sustainable Potential	Utilization Rate	
			Volume	%
1	Waters Sea	37,500 tons/ year	19,700.70 tons/ yr	52.50
2	Waters General	10,000 tons/ year	213.30 tons/ yr	2.10
3	Brackish Water	8,500 Ha	4,643.36 tons	20.80
4	Cultivation	6,000 Ha	369.43 tons	7.05
5	Freshwater Aquaculture _ Cultivation Sea	7,000 Ha	27.73 tons	8.80

Source: Processed from District DKP data Kolaka 2022

Production fishery Regency Kolaka For all types of waters and activities, cultivation tends to experience fluctuation from 2004 to 2008. 2008 level utilization reached 52.5% of guess potency sustainable of 37,500 tons/year. Production waters generally looked experience fluctuate and tend to decrease Where production highest achieved in 2004 with a volume production _ as big

315.90 tons, and production Lowest in 2006 amounted to 144.80 tons.

Production fishery brackish water cultivation seen experience enhancement consecutive from 2004 to 2007; however, it experienced a decline in 2008 with production volume _ only as big as 4,643.36 tons and production Lowest during brackets five years. Production fishery freshwater cultivation_ experience fluctuation from 2004 to 2006 look _ experience enhancement. However experienced a decline in 2007 and a back increase in 2008, which produced its highest in five years, as significant as 369.43 tons, with a level utilization of 7.05%. Production fishery cultivation sea show enhancement from year to year and reached production highest in 2008, i.e. _ an enormous 27,727 tons with a level utilization of 8.8%.

Catch per unit _ effort or catch per unit effort (CPUE) for grouper sun in Regency Kolaka fluctuates yearly. Significant improvement _ happened in 2014, then decreased in 2016 and increased return next year, 2017 decreased in 2019 and happened enhancer back in 2020 and 2021 (Figure 2).

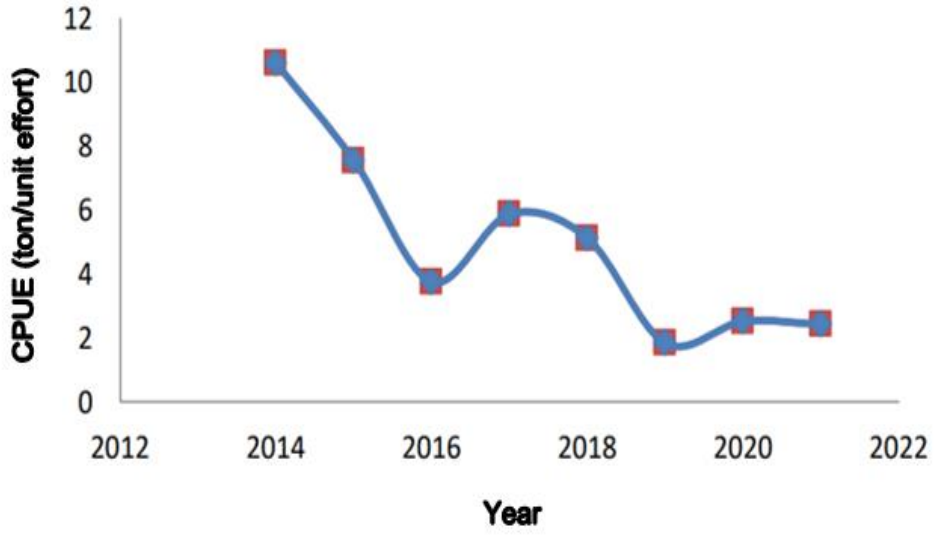

Figure 2. Catch per unit effort (CPUE) grouper sun in the waters Regency Kolaka 2015 to 2021

Figure 2. Shows that fishermen can obtain a high yield _ in a year specific Then simultaneously increase effort arrest, but followed with increasing results _ diminished over the years next Because source Power has caught and reduced. King (1995) said that results catch characterized by the MSY (maximum sustainable yield) obtained from something stock source Power expected No influence reproduction and recruitment in Century front.

Through method regression simple between CPUE (Schaefer model) and effort standard obtained mark coefficient regression and coefficients determination (R2) for grouper sun, looks that the value of R2 for the Schaefer model is more considerable 0.8 than Fox models 0.7 up in calculation MSY and foot values Schaefer's model was used. Objective use of the production surplus model to determine the level of optimum effort, i.e. something productive effort _ that results in a maximum and sustainable catch. _ Method This Lots used in the area waters tropical Because this method only uses results catch per attempt (CPUE).

Production surplus is based on assumptions that every fish species in the year will produce an amount of excess (surplus). Caught, and if caught, the

surplus generated so a source of Power will still be sustainable. The connection between effort arrest with results arrest shows an asymmetrical curve parabola _ Where results catch will increase with an increased amount of effort until it reaches point max and then decrease although with an additional amount of effort.

More exploits _ big from level the through addition effort like addition tool catch and ship No will increase results catch rather, on the contrary, will lower stock, so the results obtained will the more reduce from year to year. It _ will impact on size cost issued production _ with minimal profit so that fishermen will experience loss from facet financial and time. Condition this too will result in grouper population _ will experience arrest excess. For more clear curve connection, effort arrest with production can be seen in Figure 3.

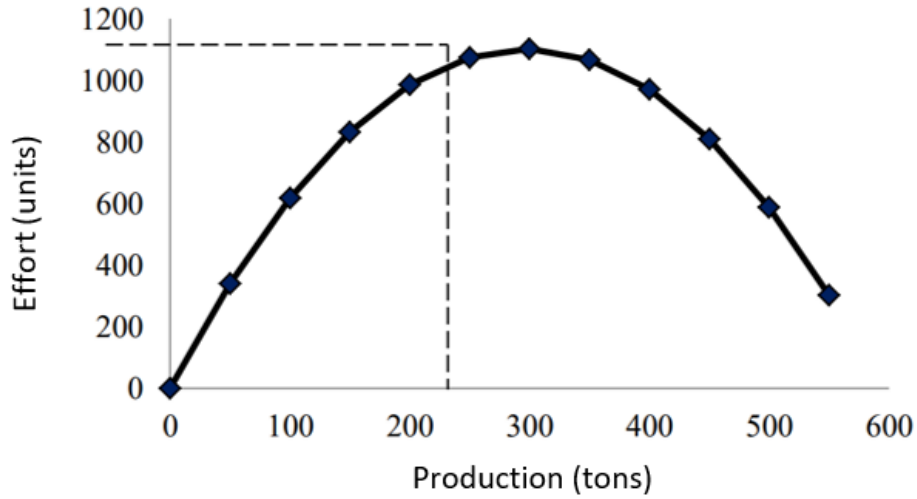

Figure 3. Curve connection between production and effort of the Schaefer model

The maximum value of sustainable yield (MSY) or results catch maximum sustainable (HTML) grouper fish sun in the waters Regency Kolaka as enormous 1103 tons with use approach precautionary approach, Department Maritime Affairs and Fisheries set amount results allowable catch (JTB) is 80% of MSY (Barani, 2004; Mous et al., 2005). Based on the calculation of the results, then the JTB of groupers in the waters of Regency Kolaka of 882 tons per year with an effort of 297 units. Based on the acquisition JTB value, the amount of catch made by fishermen _ has exceeded from amount results allowable catch _ from 2016 to the _ year 2021. They are resulting in height rate exploitation in the waters of Regency Kolaka by 70%. Boer and Aziz (1995) stated that management source Power fishery aim achievement the well-being of fisherman, provision of material food, and ingredients, raw industry producer foreign exchange, as well as know the optimal portion of utilization by fishing. Besides That, management fisheries also control the amount of allowable catch _ based on the catch's maximum sustainability.

Source Power fishery has characteristic rights owned by the common property; that is, utilization of source Power can be used in time simultaneously by more than one individual. Because _ it is on type of business, the utilization to give level relative advantage _ will raise pressure vital utilization _ so that if No arranged with Goodwill tends leads to utilization superfluous and not close possibility happening threat on continuity business That alone. Fauzi and Anna (2005) stated

challenge Of looking after a source of sustainable Power becomes a complex issue in development fisheries. However, source Power fishery is categorized as a source of Power that can be recovered. Frequently asked questions appear as how many big fish can catch without must raise impact negatively on the future.

Potency fishery sea indeed is a considerable asset for the growth economy of Indonesia. However, asset This still needs to be utilized in a manner maximum. Potency fishery sea covers fishery catch, cultivate sea and industry biotechnology marine. According to Dahuri (2002), potential fishery sea Indonesia reached 6.4 million tons per year with an amount allowable catch _ of 5.2 million tonnes or 80% of MSY. Until now, This amount catch reached 4.7 million tons (KKP 2021). The world population is increasing rapidly, so the need for food, including fish, also increased. The state must arrange permissible catch _ based on information scientifically designed _ To maintain or return species to level results sustainable maximum (MSY).

Conclusion

Potency fishery grouper in the District Kolaka is big Enough; however, this catch per unit effort or catch per unit effort (CPUE) for grouper sun in Regency Kolaka fluctuates yearly. Grouper fish in the water Regency Kolaka has experience excess catch by 70%. Based on these data, effort management must be done immediately to maintain grouper fish resources in the Kolaka district.

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