



CHARACTERISTICS AND CATCH OF METAL JIG FISHING RODS IN THE WATERS AROUND SORONG WEST PAPUA

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ABSTRACT

Recreation is done for the purpose of fun and relaxation. One of the interesting recreational activities is fishing activities. This activity can revive marine tourism. This research aims to identify the characteristics of sport /fun fishing anglers who fish around the waters of Sorong and analyze the technical feasibility of sport / fun fishing in the waters around the mouthpiece. This research was conducted using a case study survey approach on sports / fun fishing activities in Sorong Waters. The data collection method used is an interview (quisioner) and observes directly the hand line fishing gear carried out by anglers and records the location and catch. The data taken in this study are primary data and secondary data. Primary data is taken by observing, and interviewing anglers. Secondary data is supporting data to assist and complement the completion of this research. The results of the study obtained hasil catch commonly obtained by anglers, namely: Grouper, Emperors, Snapper, Amberjack, Trevally, Spanish Mackerel, Jobfish, Barracuda, and Pomfret. The results of a survey of 5 locations (Makoi, Wayar, Senapan, Saoka, Makbon) showed that the five locations were suitable for sport fishing, proved effective to get catches using metal jig with the most results in the waters of Batu Lobang – Makbon, followed by Makoi, Senapan, Saoka and Wayar.

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1. Introduction

Recreation is an effort to refresh the body through activities that are enjoyed and relaxed and use free time. Recreational activities can be done individually or in groups. Activities can be in the form of sports, enjoying nature, or other activities that can calm the heart, mind and refresh the body. Fishing activity is an activity that is again a trend in filling free time and for pleasure. [1]

In the Covid-19 pandemic, it began to look again at recreational fishing activities (sport / fun fishing) carried out by the community in the waters around Sorong. This is possible for free time and at the same time as sports and recreation according to hobby or pleasure. Locations that are widely visited are the waters around Sorong, which are waters that are easily accessible to anglers with one day fishing trips, such as Senapan Island, Tanjung Makoi, Sagawin Strait (Wayar), Batu Lobang Waters, Makbon Waters, and several other places with affordable locations from Sorong City.

This fishing activity can be an opportunity, especially in reviving marine tourism, and can also be a threat in the preservation of resources if not managed properly, such as the existence of prohibited fishing activities such as catching protected fish or catching types of fish that are not yet worth catching.

In connection with this, it is necessary to conduct research to review the technical feasibility of sports / fun fishing activities conducted in Sorong Waters.

2. Literature Review

2.1 Concept of Recreational Fishing Activities

In Europe, more than 2 million use their recreational activities by fishing. The United States has been known to its residents fond of refreing[3] because the data and information of anglers and complete profiles can be found easily and have been for a longtime. In Addition, Canada [4] andAustralia [5] also pioneered fishing as a means of recreation.

The concept of fishing tourism is put forward by [7], the link between tourism and fishing activities can be divided into two, namely fishing tourism and tourism angler. Happy fishing activities are done to fill free time as well as for fun.

2.2 Fishing Location

a. Beach

The beach is a location that is easily accessible by vehicle itself. Anglers can channel their hobbies by fishing from the beach pinggir, or up a cliff to reach the location without using a boat or boat, so that the costs incurred can be more efficient.

b. Sea and Deep Sea

Fishing activities in the sea and deep sea is fishing remotely from the beach or land. Fishing trips are determined by the following land-to-sea fishing distances[8] :

(a) One day trip

This fishing activity is carried out to the fishing area without staying overnight. The journey usually starts before the morning before and the angler will go home in the afternoon or before nightfall.

(b) Overnight trip

Fishing activities with relatively long distances usually anglers will stay for a few days and overnight with easy access to cooking and tents to stay.

(c) Trip live-on-boat

Fishing activities are usually filled by at least 10 people with large boat facilities. Anglers live in boats with the capacity of masak ease and the presence of fish hatches.

2.3 Capture Gear Construction

Fun /Sport Fishing anglers usually use a hand fishing rod with or without a rod and include handline types. Handline fishing gear falls into the category of fishing gear. The main components are fishing rods, fishing line, and fishing rod eyes. Handline is used to catch various types of fish, both basic fish and pelagic fish. In Indonesia this fishing gear is in the form of a rope roll. In the opinion [9] that the fishing rod of deep waters consists mainly of 1) rolls of rope; 2) fishing line; 3) fishing rod eyes; and 4) ballast 5) swivel. Live bait is given to attract the attention of fish that have been targeted. The fishing rod's eyes moved following the movement of the live bait.

Construction of hand line fishing gear that is often used by happy anglers or sport fishing in Sorong Waters:

The large towing rope the size of the tug rope / fishing line with the size of the fishing rod's eyes is adjusted to the target of capture[10]. The towing rope used numbered can use PE gravity / non gravity number 3 or 4 with a length of 200-500 meters. The function of this towing rope is as the main rope where the swivel, ballast, and also fishing rod eyes.

Swivel is part of a fishing rod that is used in an effort to prevent tangled and slinging branch ropes and prevent breaking when getting fish[11]. These swivel are made of stanles material that is resistant to rust so that its use is longer.

Alas rope or commonly called leader used a smaller size than the size of the towing rope, which is numbered 40. The use of smaller ropes aims to make the rope invisible when in the water. The length of the leader is 1-1.5 meters. The pedestal rope is usually tied after the main rope is tied to the swivel.

Ballast used there are those who use tin with a size of \emptyset 6 cm and integrated with fishing rod eyes, namely on the type of metal jig fishing rod. The size of the fishing rod ballast is 100-300 grams which serves to attract bait on the fishing rod's eye so that the deadline to the bottom of the water and the position of the fishing gear used upright vertically so as not to tilt due to the influence of currents [12].

Fishing rod eyes serve to hook the bait and as a related place for fish when caught. The eyes of the metal jig fishing rod are made of iron with a paired axis model, one axis there are two fishing rod eyes. Fishing operations are determined by the size of the fishing rod's eyes and the color of the bait[13].

2.4 Operation of Capture Gear

The method of operation of fishing gear is quite simple, the stages of operation are as follows:

a. Preparation, is the initial stage of preparing all activities and checking the condition of the fishing gear. All components are checked, if there is damaged new replacement of damaged components so that when hauling the rope is not broken. Another preparation is bait, using both artificial bait and natural bait.

b. Setting, the main focus of the setting is to lower / drop both throwing fishing gear well and correctly to avoid getting wrapped or entangled in fishing line. According to [14], the stages of the setting include: hooking the bait to the fishing rod's eye, further lowering the ballast continued lowering the fishing rod's eye containing the bait. Then the fishing gear is stretched to a depth adjusted to the fishing gear at the final stage.

c. Immersing is the waiting period until the fish eats bait. The waiting period depends on the presence of the target around the fishing rod. Anglers need patience and the ability to know the fishing ground. If there is no fish, you can choose another location.

d. Hauling is the process of withdrawing fishing gear by rolling fishing line raising fish caught to the ship. Hauling is usually 20-45 minutes depending on the weight of the fish. Fish that are already seen in the leader can be raised using a gancu. According to [14] the fish tied to the fishing rod's eye is then the fishing line is pulled until the fish catches up on the boat. According to [9], the determination of fishing locations is the initial stage of fishing operations. The location of the catch is usually around the Fish Agregating Device-Rumpon, because the types of fish both small and large are always foraging around the 'rumpon'.

2.5 Catch

All types of fish become the target of the catch of happy fishing rods. The catch in the form of high-economy fish both dispersal, grouper, snapper, travelly, mackerel or other types of fish that can be processed into food products. According to [15] fishing gear has a catch target in the form of large eye tuna (*Thunnus obesus*), yellowfin tuna (*Thunnus albacore*), other catches can be used as side dishes while at the capture site.

3. Research Method

The study was conducted starting in October until December 2020. The operation of fishing rods is carried out by following 'Urakan Sorong's anglers in the waters around Sorong for 15 trips. The data collection of the fishing is carried out from the member anglers of 'Urakan Sorong' in the city and district of Sorong by the form of quisioner data.

This research was conducted using a case study survey approach on sports / fun fishing activities in Sorong Waters. According to [16], case study research methods are used to provide a detailed picture of the background, traits and characteristics typical of the case, or the status of the individual, which then from the characteristics above will make it a general thing. The case taken is a sport fishing activity / fun fishing with a location in the waters around Sorong, in the form of characteristics and a review of technical feasibility.

The data collection method used is an interview (quisioner) and directly observes hand line fishing gear carried out by anglers urakan sorong and records the location and catch. The data taken in this study are primary data and secondary data. Primary data is taken by observing, and interviewing anglers. Secondary data is supporting data to assist and complement the completion of this research.

The data analysis method used is descriptive statistics, according to [17], where the collected data is described and presented in the form of tables or diagrams.

Characteristics of anglers, using with descriptive tabulation and interpretive analysis. Tabulated analysis to determine the perception and attitude of the public towards sports fishing activities is expressed in percent (%) and presented in the form of diagrams, then interpretation is carried out.

Capture analysis is used deskriptif analysis to tabulate the composition of catches in general.

Technical feasibility uses comparative descriptive analysis to compare types and measures against resource sustainability.

4. Result

4.1. Fun Fishing Anglers in Sorong City/ Regency

4.1.1. Angler Data

Metal jig anglers is member of Urakan Sorong tim, who fish in Sorong Waters and surrounding areas are all at a productive age, namely the youngest angler is 21 years old, and the oldest is 42 years old. The number of anglers < 35 years amounted to 21 people and the remaining 11 people aged > 35 years. The age of this angler is very important considering the activities of jig anglers require stamina that supports in the sea. The 32 registered anglers generally already have permanent jobs, such as ASN, self-employed, employees, farmers and others or have not worked, and the most occupations are self-employed, which is as many as 20 people (62.5%). The address of the angler's residence is dominated by the people of Sorong Regency as many as 22 people (68.75%), and the rest comes from Sorong City as many as 9 people (28.16%) and another 1 person from outside the city / Sorong Regency. Data from the fishing family shows that anglers have family dependents of 2 to 8 people, most have dependents of 4-5 people and only one angler who does not have a family.

4.1.2. Fishing Experience and Techniques

Fishing experience is quite varied ranging from beginner or new anglers to experienced anglers. Based on the data obtained that fishing experience ranging from 1 year until there are already 20 years of fishing. Broadly speaking, the experience is less than 5 years as many as 12 people and more than 5 years as many as 20 people, and the most experienced fishing 5-6 years. Likewise with fishing techniques, it turns out that metal jig anglers not all rely on just one fishing technique but have fishing facilities used at once when fishing, namely some that add techniques using natural bait, casting techniques, and popping along with fishing technique data from 32 fishing rods:

Table 1.

Fishing techniques used by fun fishing anglers

No	Fishing Techniques	Total	Percentage
1	Metal Jig Fishing Rod (1 Technique)	5	16.67
2	Metal Jig Fishing Rod +Natural Bait (2 Techniques)	14	46.67
3	Metal Jig +Casting Fishing Rod (2 Techniques)	3	10
4	Metal Jig +Popping Fishing Rod (2 Techniques)	1	3.33
5	Metal Jig Fishing Rod +Natural Bait +Casting (3 Techniques)	6	20.00
6	Metal Jig Fishing Rod +Natural Bait+Casting_Popping (2 Techniques)	3	10.00
Total		32	100

Source: data processed (2020)

4.1.3. Home Base and Fishing Trip

As per residential data that most anglers (68.75%) come from Sorong Regency, they go to sea with a home base or base departing from the beach or waters around Sorong Regency, although there are some anglers who depart from the waters of Sorong City. Some bases are commonly used by anglers as follows:

Table 2

Angler Base

No	Sorong Regency Base	Sorong City Base
1	Aimas Tourism	Saoka Beach
2	Makbon Port	Puri Bridge, Klademak Beach
3	Klalin Beach	Dom Beach
4	SP 3 Beach	Sorong Fishing Port
5	Mega Moraid Beach	Polairud Post, Sorong

- 6 Batu Lobang Beach Suprau Beach
- 7 Arar Beach

Source: data processed (2020)

It was recorded that anglers who went fishing from Sorong Regency Base as many as 20 people, and departed from the Sorong City base amounted to 12 people. The place to reject these anglers (home base) is chosen in accordance with the habits of fishermen in dealing with their communities, the length of fishing trips, ease of transportation access to the location, and confidence in transportation services in showing satisfactory fishing spots.

Metal jig anglers do fishing varies depending on the habit and community. Data 32 anglers provide information that anglers with a trip length of 1 day as many as 17 people, a 2-day trip as many as 13 people and the rest more than 2 days (3-5 days) as many as 2 people. Transportation used to the fishing location consists of Speed (2 people), Longboat one engine as many as 25 people and longboat with 2 outboard engines as many as 5 people.

This means of transportation is in accordance with the operating costs in each fishing. The operating costs of each angler vary depending on the length of the trip, location and means of transportation affecting operating costs. The cost incurred by each angler ranges from Rp. 200,000.00 to Rp. 2,000,000.00 with an average of Rp. 785,937.50 / speed or longboat. Here are the usual transportation costs of anglers:

Table 3.
Fishing Means of Transportation

No	Transportation	Minimum cost - Maximum
1	Longboat one engine	Rp. 200.000,00 – Rp 700.000,00
2	Two-engine longboat	Rp. 800.000,00 – Rp 1.500.000,00
3	Speed boat	Rp. 1.500.000,00 – Rp. 2.000.000,00

Source: data processed (2020)

Transportation costs are most often incurred by anglers in the range of Rp. 200,000, - to Rp. 700,000, - with an operational average of Rp. 500,000.00 in one sea using a one-engine longboat (outboard motor). The capacity of one longboat outside the motorist ranges from 2 to 5 anglers, so that overall either a longboat of one engine or two engines, the cost of which must be borne by one angler is Rp. 125,000 to Rp. 700,000.00.

The frequency of fishing everyone is different according to the availability of free time and the level of fishing preferences. With the Covid-19 pandemic, some anglers have free time so that they can add fishing trips, and there are also those who feel afraid to meet people so as to reduce fishing trips.

Table 4.
Frequency of fishing before Covid-19 and during the Covid-19 pandemic

Frequency of fishing	Before the Covid Pandemic	At the time of the Covid pandemic
1 x / Week	11	17
2 x / Week	2	9
1 x / Month	5	2
2 x / Month	11	2
Uncertain	2	2

Source: data processed (2020)

Based on these data, it can be found that the frequency of fishing is more at the time of the pandemic than before the Covid pandemic. More anglers who initially do 1 x/ month and 2 x / month fishing to 1 x / week and 2 x / week increase. However, there are some anglers who actually reduce or do not do fishing(uncertain).

4.2. Characteristics of Catch and Fishing Location

Anglers generally look for locations in accordance with the target they want to get or called target fish. This target fish is also adapted to fishing techniques. So that the fish obtained is divided into target fish and non-target fish. Data shows that fish that are caught are actually only for consumption (18 anglers) and it turns out that there are also anglers who sell catches (14 anglers). The non-target catch is also taken by anglers with the following data:

Table 5
Treatment of anglers' catches

Non-target catch	Total	Percentage (%)
Taken all	10	31.25
On release / drop all	0	0.00
Off the small fish	16	50.00
Off the protected fish	18	56.25

Source: data processed (2020)

Generally the anglers initially do not know the location of the fishing rod satisfactory. Fishing rod catches can sometimes be many and sometimes can be few. Information obtained that the results of anglers per individual per trip can be at least 1 tail and at most pay 40 tails or at least 3 kg to 60 kg. If the fish in that location is good enough, then the angler will mark the location so that it becomes your spot or as a satisfactory spot, and vice versa. Here are some fishing experiences at several fishing locations according to the experience:

Table 6
Satisfactory Location for anglers

No	Satisfactory Fishing Rod Location	Number of fans	Depth
1	Makoi Waters	6	60, 100, 200
2	Mega-Moraid Waters	2	50, 70, 100

Characteristics and catch of metal jig fishing rods in the waters around sorong west papua (Misbah Sururi)

3	Wayar- Sagawin Waters	4	30, 40, 100, 150
4	Batanta Waters	8	50, 60, 150, 250
5	Senapan Waters	4	30, 60, 100, 150
6	Kabra Waters	1	20, 30
7	Saoka Waters	3	50, 100, 250, 300
8	Batu Lobang- Makbon Waters	4	100, 150, 200, 300

Source: data processed (2020)

Table 7.
Unsatisfactory location for anglers

No	Unsatisfactory Fishing Rod Location	Number of Bookmark
1	Tanjung Kasuari Waters	3
2	Jeffman Waters	1
3	Pulau Doom Waters	1
4	Matan Island Waters	6
5	Long Island Waters	4
6	Raam Island Waters	2
7	Dokarim Waters	3
8	Arar Waters	2
9	Balbili / Kabra Waters	2
10	Pasir Putih Waters	4

Source: data processed (2020)

Table 8.
The catch that is usually obtained by anglers

No	Satisfactory Fishing Rod Location	Types of fish that are commonly obtained
1	Makoi Waters	Grouper, emperor, trevally, Amerjack
2	Mega-Moraid Waters	Red Emperor, Jobfish
3	Wayar- Sagawin Waters	Grouper, emperor, trevally
4	Batanta Waters	Grouper, emperor, trevally, Jobfish
5	Senapan Waters	Amberjack, Trevallly, Spanish Mackerel, Jobfish
6	Kabra Waters	Grouper, emperor
7	Saoka Waters	Pomfret, Spanish Mackerel, Trevally, Grouper
8	Batu Lobang- Makbon Waters	Pomfret, Oil fish, Spanish Mackerel, Trevally, Grouper, Snapper

Source: data processed (2020)

4.3. Sport Fishing feasibility in the Waters of Sorong and Surrounding Areas.

The feasibility of fishing locations is analyzed in a description with an analyzed level of fishermen's satisfaction about something expected from fishing activities. The level of satisfaction of anglers is as follows:

Table 9.
Fishing location eligibility criteria

The satisfaction level of anglers	Number of respondents	Percentage (%)
Get one or two large fish	19	59,38
Get results equivalent to a minimum of operational capital	9	28,13
Get an equivalent result of more than operating capital	4	12,50

Source: data processed (2020)

Table 10.
Fishing hopes on Sport/Fun Fishing Sorong Fisheries

No	Fishing Hope	Number of respondents	Percentage (%)
1	Clear Spot Listings	10	31,25
2	Socialization / Training	2	06,25
3	Ease of access and facilities	2	06,25
4	Close to Home base	9	28,13
5	Maintaining Cleanliness and Sustainability	6	18,75
6	No Entry	3	09,38
	Total	32	

Source: data processed (2020)

Based on the data shows that metal jig anglers are mostly satisfied if:

1. There is a clear (satisfactory) location.

2. Affordable location from home (home base)
 3. Can get a catch of fishing at least 1 or 2 large tails (> 3 kg) at that location.
- Then the location is satisfactory based on the experience of anglers there are as many as 8 locations, as follows:

Table 11
Location and estimated trip to spot fishing

No	Satisfactory Fishing Rod Location	Number of respondents	Estimated Journey by longboat 1 engine
1	Makoi Waters	6	1.5 – 2 jam
2	Mega-Moraid Waters	2	5 – 6 jam
3	Wayar- Sagawin Waters	4	1.5 – 2 jam
4	Batanta Waters	8	5 – 6 jam
5	Senapan Waters	4	1 – 1.5 jam
6	Kabra Waters	1	1.5 - 2 jam
7	Saoka Waters	3	1 – 1.5 jam
8	Batu Lobang- Makbon Waters	4	1.5 – 2 jam

Source: data processed (2020)

Based on the Table, there are 5 (five) potential locations, namely Makoi Waters, Wire Waters – Sagawin Strait, Rifle Waters, Saoka Waters and Batu Lobang-Makbon Waters. This location was chosen because it is quite close to home base, which is only about 1.5 to 2 hours drive using a one-engine longboat. While the 3 locations we did not survey considering the long journey from home base (Mega and Batanta) and Kabra Waters only one respondent, while kabra waters also fall into the category of unsatisfactory waters for Jig anglers (Table 8). The next five selected locations were surveyed to determine technical feasibility on the third criterion, namely being able to get fishing catches of at least 1 or 2 large sizes (> 3 kg). The catch to five locations is presented as follows:

Table 12.
Metal jig Survey Results in Makoi Waters

Trip / Date	Catch	
	Individual	Kg
1	5	8.006
2	4	11.906
3	6	12.495
	15	32,401

Source: data processed (2020)

Table 13.
Results of Metal Jig Survey in The Wire Waters

Trip / Tanggal	Catch	
	Tail	Kg
1	11	5.657
2	29	10.793
3	15	3.595
Total	55	20.045

Source: data processed (2020)

Table 14.
Metal jig Survey Results in Rifle Waters

Trip / Date	Catch	
	Individual	Kg
1	5	11.98
2	8	08.34
3	4	10.605
Total	17	30.925

Source: data processed (2020)

Table 15.
Metal jig Survey Results in Saoka Waters

Trip / Date	Catch	
	Individual	Kg
1	4	16.391
2	5	5.788
3	5	4.085
Total	14	26.264

Source: data processed (2020)

Table 16.
Results of Metal Jig Survey in The Waters of Batu Lobang-Makbon

Trip / Date	Catch	
	Individual	Kg
1	5	8.33
2	4	17.829
3	5	18.22
Total	14	44,379

Source: data processed (2020)

The results of a survey of 5 locations (Makoi, Wayar, Senapan, Saoka and Batu Lobang) conducted by each one day trip turned out to get a fairly satisfactory catch for metal jig anglers. All locations are able to get a large enough fish which is a sensation in itself for sport fishing anglers. The five locations also have easy access to reach so that one day trip fishing can be done. So that the five locations in this survey are very worthy of being a location for sport fishing in Sorong Waters and surrounding areas.

5. Conclusion

Based on the results of research characteristics and catches of metal jig fishing rods in the waters around Sorong West Papua, the following conclusions were obtained:

1. As an angler comes from sorong district, productive age, with a fishing trip of 1-2 days. The location of anglers in the waters of the mouthpiece and surrounding areas and only occasionally out with a trip away. Favorite locations in that satisfy are Makoi, Wayar, Batanta, Senapan, Kabra, Saoka, Batu Lobang, Makbon.
2. The usual catches obtained by anglers are: Grouper, emperor, travelly, Amerjack, Ruby Snapper, Red Snapper, Barracuda, Trevally, Spanish mackerel, and Pompret
3. The survey results of 5 locations (Makoi, Wayar, Senapan, Saoka, Makbon) showed that the five locations were suitable for sport fishing, proved effective to get catches using metal jig with the most results in the waters of Batu Lobang - Makbon, followed by Makoi, Senapan, Saoka and Wayar.

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