

COMPOSITION OF MODIFIED SCOTTISH SEINE NETS CATCHES IN MAJENE WATERS

Komposisi Hasil Tangkapan Payang Modifikasi di Perairan Majene

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ABSTRACT

The potential for fish resources is very abundant in Majene Regency, especially pelagic fish species that can be caught using Scottish seine nets. Fishing gear is one of the most important aspects of the fishing process. Scottish seine net fishing gear is widely spread around Majene waters, with engine capacities less than 10 gross tons (GT). This study aims to determine the composition of fish species and the size of the catch of modified Scottish seine net operating in Majene waters. This study used a modified Scottish seine net with a mesh size of 2,54–5,08 cm in the bag section. This research was conducted from May to June 2025, with a total of 30 trips. Based on the results of the study, there are various types of fish caught on modified Scottish seine net fishing gear, including shortfin scad (*Decapterus macrosoma*), small mackarel tuna (*Euthynnus* sp), rainbow runner (*Eligatis bipinulata*), bigeye scad (*Selar crumenophthalmus*), skipjack tuna (*Katsuwonus pelamis*), mackarel tuna (*Euthynnus affinis*), and unicorn filefish (*Aluterus monoceros*). The total catch during the study was 5185 fish with a total weight of 275,872 kg. The most abundant catch was 3976 shortfin scad (*Decapterus macrosoma*), with a total weight of 198,857 kg. The length interval of the caught shortfin scad was 16–25 cm.

Keywords: Majene, Modified Scottish Seine Net, Shortfin Scad

ABSTRAK

Potensi sumberdaya ikan yang sangat melimpah di Kabupaten Majene terutama jenis ikan pelagis yang penangkapannya dapat menggunakan payang. Alat Penangkapan ikan merupakan salah satu aspek penting dalam proses penangkapan ikan. Alat tangkap payang banyak tersebar di sekitar perairan Majene dengan kapasitas mesin yang kurang dari 10 *gross tonnage* (GT). Penelitian ini bertujuan untuk mengetahui komposisi jenis dan ukuran ikan hasil tangkapan payang modifikasi payang yang beroperasi di perairan Majene. Penelitian ini menggunakan payang modifikasi dengan *mesh size* pada bagian kantong 2,54 – 5,08 cm. Penelitian ini dilaksanakan pada bulan Mei - Juni 2025 dengan total 30 trip. Berdasarkan hasil penelitian, terdapat beragam jenis ikan hasil tangkapan pada alat tangkap payang yang telah modifikasi

antara lain ikan layang (*Decapterus macrosoma*), tongkol kecil (*Euthynnus* sp), sunglir (*Eligatis bipinnulata*), selar bentong (*Selar crumenophthalmus*), cakalang (*Katsuwonus pelamis*), tongkol (*Euthynnus affinis*), dan ayam-ayam (*Aluterus monoceros*). Total hasil tangkapan selama penelitian ialah 5185 ekor dengan total berat 275,872 kg. Hasil tangkapan utama ialah ikan layang (*Decapterus macrosoma*) sebanyak 3976 ekor dengan total berat 198,857 kg. Selama penelitian menggunakan payang modifikasi hasil tangkapan ikan layang yang tertangkap memiliki interval panjang dengan ukuran 16-25 cm.

Kata Kunci: Majene, Payang Modifikasi, Ikan Layang

INTRODUCITON

Geographically, Majene Regency is located in a coastal area facing the Makassar Strait. Astronomically, this region lies between 2°38'45" and 3°38'15" South Latitude and 118°45'00" and 119°4'45" East Longitude. Its administrative boundaries include Mamuju Regency to the north, Polewali Mandar Regency to the east, Mandar Bay to the south, and the Makassar Strait to the west (BPS Majene Regency, 2019). All marine fishery resources are inherently common property. This open-access ownership ensures that no one has any special rights to prevent others from exploiting these fishery and marine resources (Primyastanto, 2016).

One of the fishing gear used by Majene fishermen is the Payang. The Payang is a type of purse seine used to catch pelagic fish, or fish that live in the surface layers of the water. The two wings on this fishing gear serve to scare, surprise, and herd fish into the net's pocket. In marine fishing activities in Indonesia, the payang fishing gear plays a significant role, both in terms of catch productivity and significant labor involvement (Subani & Barus, 1989). Payang is classified as a type of seine net, a type of fishing gear operated by encircling the net over a specific fishing area (Brandt, 1972).

Research on payang operated by fishermen at the Carocok Tarusan Coastal Fisheries Port (PPP) indicates that the payang fishing gear is environmentally friendly due to the freshness of the catch, thus categorizing it as high-quality (Febiyanti *et al.*, 2020). The composition of the catch obtained is safe for consumer consumption and does not cause poisoning or even death. According to research conducted by Akbar & Patria (2019), the composition of fish species caught using payang nets in Ciparage Village is dominated by small pelagic fish, with a highest percentage of 68%. These include anchovies, anchovies, tembang, hairtail, scad, and mackerel.

According to Winastuti (2006), fish species caught using payang nets in Majene waters include the striped mackerel (*Decapterus macrosoma*), the mackerel (*Rastrelliger kanagurta*), the song mackerel (*Sardinella fimbriata*), the tuna (*Euthynnus affinis*), the skipjack tuna (*Katsuwonus pelamis*), and the leatherback (*Aluterus monoceros*). Catches are strongly influenced by water conditions and fish abundance (Subani & Barus, 1989). Meanwhile, Asruddin *et al.* (2020), the catch with the payang fishing gear also includes trevally (*Caranx* sp), lemuru (*Sardinella* sp), mackerel (*Rastrelliger brachysoma*), semar (*Mene maculata*), hairtail (*Trichiurus lepturus*), and layang (*Decapterus* sp). Similarly, in Zikrillah's (2020) research on the composition of the payang catch used in the morning and thereafter until the afternoon, it was found that during the payang activity the catch was 75.63 kg, while in the afternoon the total catch reached 132.34 kg.

Based on the catch analysis of the modified payang, the results of the study showed that there were 10 types of fish caught and the scad (*Decapterus ruselli*) was the highest catch composition of 62.7% which was worth catching (Palo *et al.*, 2022). Based on the results of Ahsan's research (2022), there were 9 types of fish caught that were the main catch, namely scad (*Decapterus ruselli*), chicken fish (*Aluterus monoceros*), female mackerel (*Rastrelliger brachysoma*), sunglir fish (*Elegatis bipinnulata*), skipjack tuna (*Katsuwonus pelamis*), Kuwaiti fish (*Caranx ignobilis*), tembang fish (*sardinella gibbosa*) and also tuna (*Euthynnus*

affinis). According to Kurniawati (2018), the catch was dominated by scad (*Decapterus macrosoma*). In the study of Sarianto *et al.*, (2016) reported that the catchable size of mackerel in Maluku waters is >16 cm. The size of a species also depends on the season and fishing location.

Full-time fishermen are those involved in all fishing activities, while part-time fishermen are individuals who only devote part of their time to fishing (Anhar, 2018). The role of the crew is also very prominent, in addition to the ship's crew or the ship owner. Amry *et al.*, (2017) defines the crew as anyone present and working on the vessel. Najamuddin *et al.* (2020) reported on the productivity of payang in Majene that weather also significantly impacts payang productivity. Low payang productivity is due to unfavorable weather conditions, forcing fishermen to resort to alternative fishing methods such as handlines.

The payang operated in Majene waters have a 1-inch mesh size in their pockets. In this study, modified payang with mesh sizes ranging from 2.54 to 5.08 cm were used. Pangaliali fishermen use boats to reach their fishing grounds, with an average length (L) of 15.06 m, width (B) of 2.17 m, and height/depth (D) of 0.73 m, with a capacity equivalent to that of vessels designed to tow less than 10 GT. According to Tambunsaribu *et al.* (2015), payang fishing grounds are typically located in shallow shoals (close to shore) or without coral reefs.

Based on this explanation, the purpose of this study was to identify the species composition and size of fish caught using modified payang fishing gear operated in Majene waters.

RESEARCH METHODS

This research was conducted in May – June 2025 with a fishing base located in Pangaliali Village, Banggae District, Majene Regency.



Figure 1. Map of research locations with fishing grounds and fishing areas

Data on fish species and sizes were obtained from catches by fishermen using payang fishing gear operating in Majene waters. Data collection was conducted over 30 fishing trips. The tools and materials used during the study are shown in Table 1.

Table 1. Tools and Materials

No	Tools and Materials	Function
1.	Length measuring tool	To measure fish
2.	Scales	To weigh the catch
3.	Camera	For documentation
4.	writing tools	To record data in the field
5.	GPS (Global Positioning System)	To find out the coordinates of the capture location
6.	Data collection draft	For data collection
7.	Computer devices	To process data
8.	1 unit modified umbrella	As a research sample
9.	Fish caught	Sebagai bahan penelitian

RESULT

The catch using the modified payang fishing gear during the study period consisted of seven species of fish: scad (*Decapterus macrosoma*), small tuna (*Euthynnus* sp), long-tailed mackerel (*Selar crumenophthalmus*), sunglir (*Eligatis bipinulata*), tuna (*Euthynnus affinis*), skipjack tuna (*Katsuwonus pelamis*), and scad (*Aluterus monoceros*). The species and total catch of the modified payang during the study are presented in Table 2.

Table 2. Total catch of the modified payang

No	Types of Fish	Long interval (cm)	Catch (ekor)	Heavy (gram)
1	flying fish	16 - 25	3976	198,857
2	bentong snakehead fish	13 - 21	110	6,160
3	Small tuna	16 - 18	761	29,851
4	Sunglir fish	12 - 29	270	22,481
5	Skipjack Tuna	28 - 33	30	7,170
6	Chicken fish	28 - 35	14	2,905
7	Tuna	22 - 34	24	8,448
Amount			5185	275,872

During the study, the dominant catch was scad, totaling 3,976 individuals. These results indicate that scad is quite abundant in the Mejene waters between May and June. In addition to scad, there were also 761 small tuna, 270 sunglir, 110 scad, 30 skipjack tuna, 24 tuna, and 14 scad.

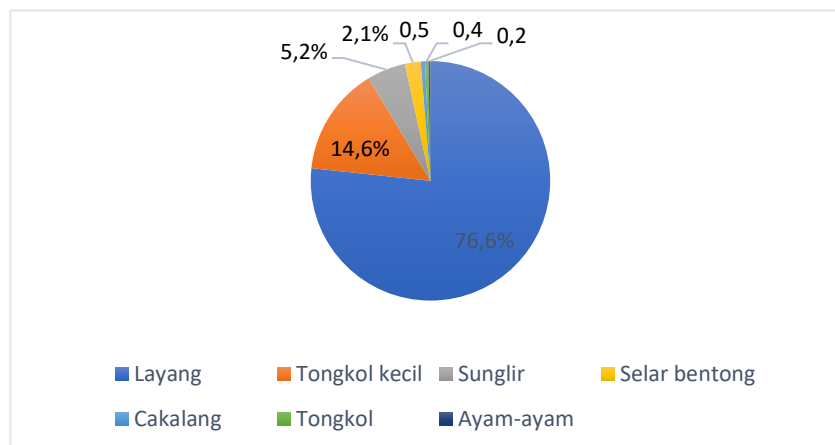


Figure 2. Composition of modified payang catch results based on the number of tails

Scad was the most dominant species caught using the modified payang fishing gear during the study, with a total catch weight reaching 198,857 grams. In addition to scad, there were also small tuna weighing 29,851 grams, sunglir weighing 22,481 grams, tuna 8,448 grams, skipjack tuna weighing 7,170 grams, selar bentong weighing 6,160 grams, and ayam-ayam weighing 2,905 grams. The total catch weight during the study using the modified payang fishing gear in May - June was 275,872 grams.

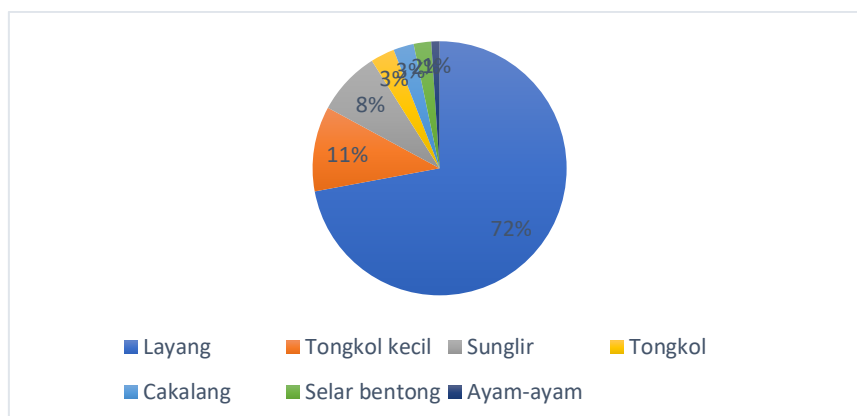


Figure 3. Composition of modified payang catch results based on weight

Based on Figure 3, it can be explained that scad was the main catch of modified payang during the study with a total of 3,976 fish. In addition to scad, there were also 761 small tuna, 270 sunglir, 110 selar bentong, 30 skipjack tuna, 24 tuna, and 14 ayam-ayam.

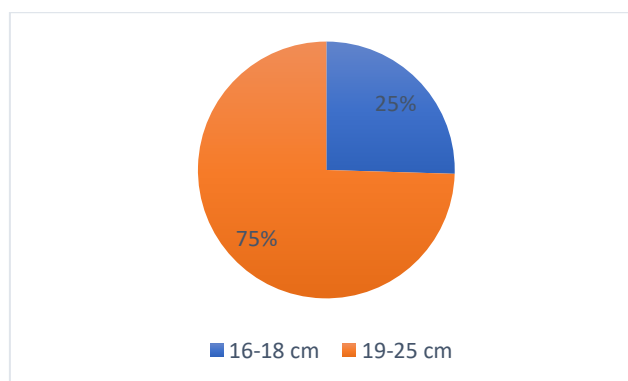


Figure 4. Percentage of the number of mackerel caught based on different lengths

Figure 4 shows that the scads caught in the modified payang have a length range of 16-25 cm. Scads that are suitable for catching are 19-20 cm. 1,013 scads were caught in the 16-18 cm length range, while 2,963 scads were caught in the 19-25 cm length range.

DISCUSSION

The total catch during the study using modified payang in Majene waters was 275,872 kg. The fish species caught included scad (*Decapterus macrosoma*), small tuna (*Euthynnus* sp), sunglir (*Eligatis bipinulata*), short-tailed mackerel (*Selar crumenophthalmus*), skipjack tuna (*Katsuwonus pelamis*), tuna (*Euthynnus affinis*), and awl-tailed mackerel (*Aluterus monoceros*). Scad was the dominant catch during the study, weighing a total of 198,857 grams. These results indicate that scad is quite abundant in Majene waters during May and June. This is consistent with research by Sarlan (2022), which states that scad (*Decapterus macrosoma*) is the primary catch from payang in Majene waters.

Scad was the highest catch during the study. Figure 4 shows that the length range of scad caught during the study ranged from 16 to 25 cm. The total catch of scad fish was 3,976, with 1,013 individuals in the 16–18 cm length range and 2,963 individuals in the 19–25 cm length range. This indicates that scad fish caught using modified payang in May–June were predominantly of catchable size. Research by Najamuddin *et al.* (2021) found that catchable size scad fish caught in Majene waters ranged from 19–20 cm, while catchable size scad fish (*Decapterus macrosoma*) in the Selang Strait measured over 16 cm (Kemhay *et al.*, 2019).

In this study, mesh size was shown to significantly influence the size of fish caught. This finding aligns with research by Najamuddin *et al.* (2019), which explained that mesh sizes in the codend that are too small and netting without tying the line can result in the capture of fish that are not yet catchable. Therefore, it is necessary to modify the mesh size of the net bag as an effort to increase the selectivity of the fishing gear so as to reduce the capture of fish that are not yet suitable for catching.

CONCLUSION

There are various types of fish caught in the modified payang, including scad (*Decapterus macrosoma*), small tuna (*Euthynnus* sp), sunglir (*Eligatis bipinulata*), bentong scad (*Selar crumenophthalmus*), skipjack tuna (*Katsuwonus pelamis*), tuna (*Euthynnus affinis*), and ayam-ayam (*Aluterus monoceros*). Scad was the highest catch during the study with a total weight of 198,857 grams with a total of 3976 fish. The length interval of scad caught during the study was 16-25 cm.

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