

**September 2024**

## **Temporary Closure as One of the Actions in Octopus Fisheries Management in Sulawesi**

### **Introduction**

Octopus (*Octopus cyanea*) is categorised as a sedentary/domestic reef-associated biota that lives in 0–150 m depth. Male and female adults usually die shortly after spawning and brooding, respectively. The biological characteristics of this species could be a basis for designing appropriate fisheries management action. Specific management strategies are addressed by mainstreaming community-led actions to maintain octopus biomass in their fishing ground.

Octopus, with their fast-growing nature, is deemed responsive to community-led management responses such as temporary closure. Additionally, management action like temporary closure is a suitable approach for the local communities to learn about community-based fisheries management. Furthermore, by letting the octopus grow in size, fishers can gain more income/economic benefit with larger and higher quality octopus.

The temporary closure of the octopus fishery is initiated as management measures action by the communities in the targeted UoCs. There are three common main goals of temporary closure, the first one is to allow small-size octopus to reach maturity and optimal size to be caught. The second is to allow mature octopus the time to spawn and brood, thus recovering the octopus population in the closure area and fishing ground adjacent to it. The third one is to maintain the coral reef ecosystem, not only from octopus fishing activities but also from excessive and/or harmful fishing pressure.

Decisions for the temporary closures are designed and agreed upon by the communities based on the available octopus fisheries data through a series of fisheries meetings, colloquially known as Data Feedback Sessions (DFS). Community members, such as fisher households and community-level buyers, will decide on several actions to implement the temporary closures, i.e. timeline, closure period and location, closure preparation, also other related agreements. Communities also decide to recognise and formalise the temporary closure through village regulations and village head decree.

### **Updates on Temporary Closure in Sulawesi**

From August 2023 to August 2024, 18 communities supported by 5 partners have implemented 22 temporary closures (Table 1). Average closure area implemented across UoCs is 93.66ha ( $\pm 21.65$ ) with average closure period duration 14.48weeks ( $\pm 0.84$ ).

Table 1 Number of temporary closure by communities in Sulawesi from August 2023 to August 2024

Province	Regency	District	Management Unit	Community	Supporting Partner	Number of Temporary Closure
Sulawesi Utara	Minahasa Utara	Likupang Barat	Bulutui	Bulutui	YAPEKA	3
Sulawesi Utara	Minahasa Utara	Likupang Barat	Gangga Satu	Gangga Satu	YAPEKA	2
Sulawesi Utara	Minahasa Utara	Likupang Timur	Likupang Dua	Likupang Dua	YAPEKA	2
Gorontalo	Pohuwato	Popayato	Torosiaje	Torosiaje	JAPESDA	1
Sulawesi Tengah	Tojo Una-Una	Talatako	Kadoda	Kadoda	JAPESDA	1
Sulawesi Tengah	Banggai	Luwuk Timur	Uwedikan	Uwedikan	JAPESDA	1
Sulawesi Tengah	Banggai Kepulauan	Totikum Selatan	Kalumbatan-Lobuton	Kalumbatan dan Lobuton	LINI	2
Sulawesi Tengah	Banggai Laut	Banggai Utara	Popisi	Popisi	LINI	1
Sulawesi Selatan	Kepulauan Selayar	Buki	Mekar Indah	Mekar Indah	LINI	1
Sulawesi Selatan	Kepulauan Selayar	Bontoharu	Kahu-Kahu	Kahu-Kahu	LINI	1
Sulawesi Tenggara	Wakatobi	Wangi-Wangi Selatan	Kadie Kapota	Kapota, Kapota Utara, Kabita, Kabita Togo	KOMANAN GI	2
Sulawesi Tenggara	Wakatobi	Kaledupa	Kadie Laulua	Sombano	FORKANI	2
Sulawesi Tenggara	Wakatobi	Kaledupa Selatan	Kadie Langge	Tanomaha	FORKANI	1
Sulawesi Tenggara	Wakatobi	Kaledupa Selatan	Limbo Kiwolu	Darawa	FORKANI	2

Mean closure areas vary across communities with Torosiaje and Popisi that have larger closure areas above average line (Figure 1). Likupang Dua has the smallest closure area size with 19.1ha and Popisi has the largest closure area with 439ha.

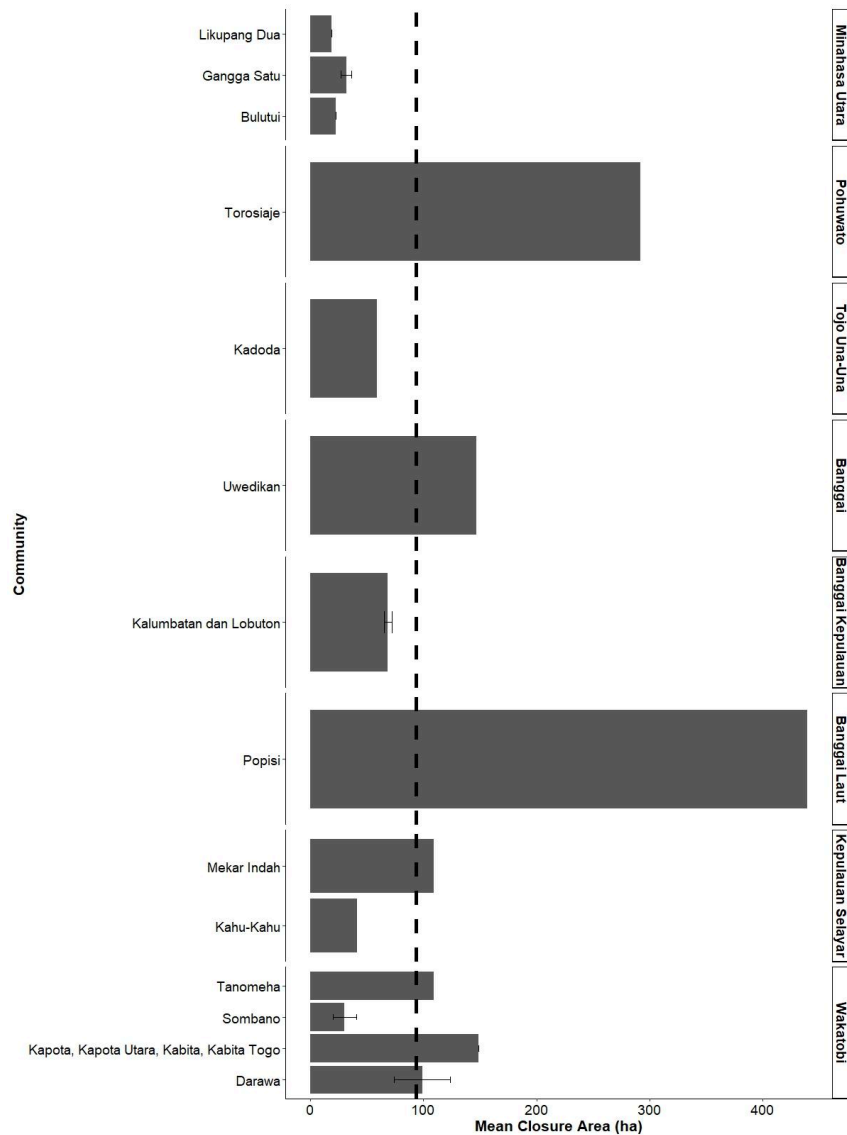


Figure 1 Average closure area (ha) with standard error bars by community and regency in Sulawesi from August 2023 to August 2024. Dashed line is the average closure area across 18 communities.

Communities in Sulawesi generally have agreed on similar closure duration with the exception of Torosiaje that have agreed to establish a closure area for 26 weeks (Figure 2). Bulutui has the shortest mean closure duration which is 11.81 weeks. However, the number does not really differ with the average closure duration that was agreed upon by the communities. Tanomeha is not present in the analysis because the community had only established temporary closure in March 2024 and have not agreed on the opening date yet.

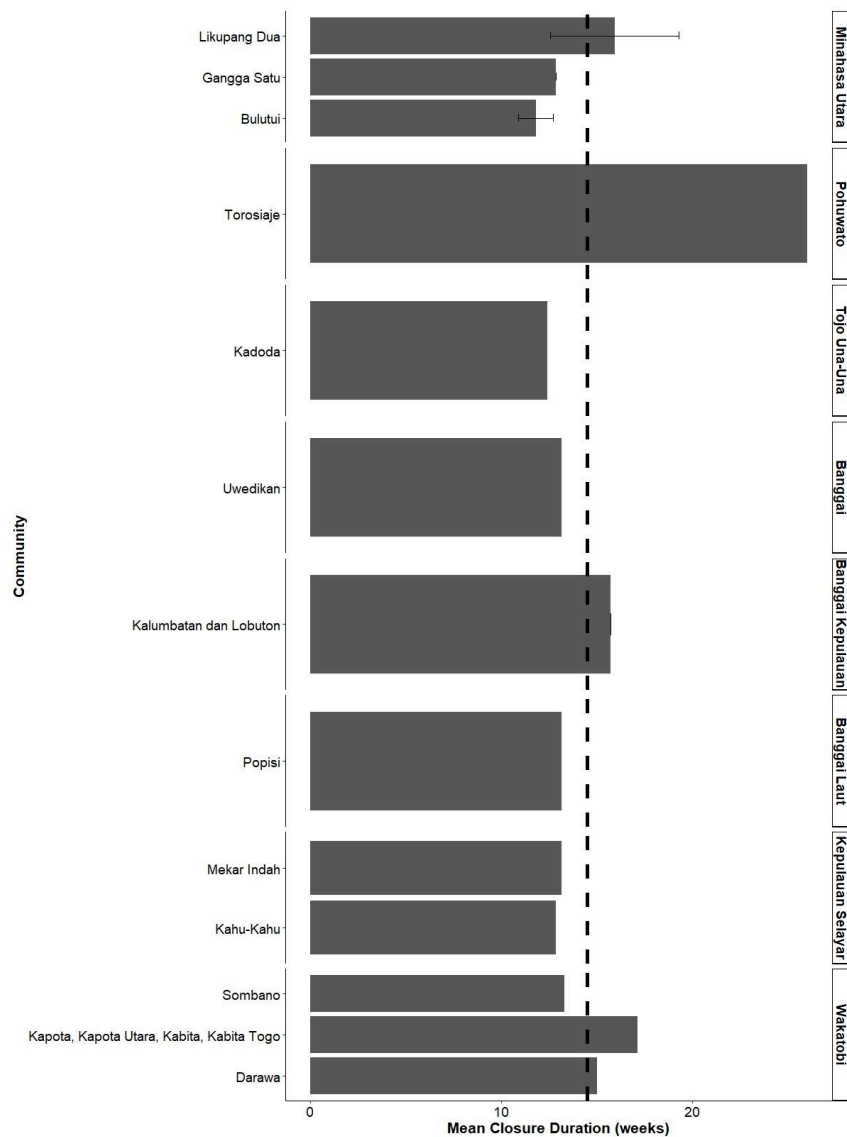


Figure 2 Average closure duration (weeks) with standard error bars by community and regency in Sulawesi from August 2023 to August 2024. Dashed line is the average closure duration across 17 communities.

After the agreement to establish temporary closure, fishers and communities that attend the meeting socialise the decision to other community members and fishers. The communities also communicate the decision to neighbouring villages and fishers regarding the regulation, especially on closure location and duration.

To measure the effectiveness of temporary closure, fisheries data is consistently being collected, especially before and after closure period. The results of the temporary closure implementation are used to evaluate management responses with the communities and other related stakeholders. This is part of the regular data feedback session and is considered important by the community because fisheries management groups want to understand the effectiveness of temporary closure. Based on the

analysis, the community can improve and make adaptive management decisions regarding their octopus fisheries management.

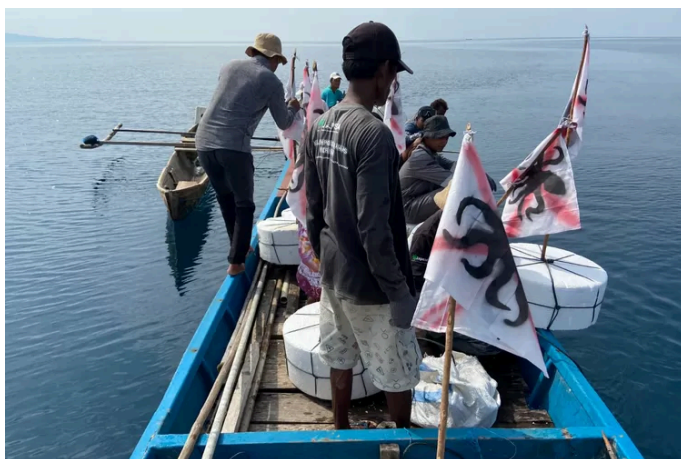
## Appendix



Appendix 1 Community members of Sombano, Wakatobi during temporary closure customary ceremony



Appendix 2 Fishers participate in the marking of temporary closure area in Sombano, Wakatobi



Appendix 3 Fishers participate in the marking of temporary closure area in Uwedikan, Banggai



Appendix 4 Customary community of Kadie Kapota, Wakatobi is preparing for the temporary closure ceremony



Appendix 5 Placing offerings as part of the temporary closure ritual in Kadie Kapota, Wakatobi



Appendix 6 Fishers catching octopus during the opening of temporary closure in Popisi, Banggai Laut



Appendix 7 Fishers catching octopus during the opening of temporary closure in Bulutui, Minahasa Utara