



Governing the Sea as Commons: From the Tragedy of Open Access toward Rights-Based, Multispecies Community Governance in Coastal Bengkulu

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Abstract

Background: Coastal communities in Bengkulu face ecological degradation and resource conflicts resulting from tensions between customary marine governance systems and capital-driven exploitation.

Objective: This study examines marine governance across Enggano Island, Pasar Seluma, Linau, and Merpas using the Commons, Rift, and Justice (CRJ) framework, which integrates commons governance, metabolic rift theory, and multispecies justice perspectives.

Methods: A qualitative comparative case study design was employed. Data were collected through field observations, in-depth interviews with 47 key informants, six focus group discussions, and critical discourse analysis of the Regional Spatial Plan (*Rencana Tata Ruang Wilayah* [RTRW]) and the Coastal and Small Islands Spatial Plan (*Rencana Zonasi Wilayah Pesisir dan Pulau-Pulau Kecil* [RZWP3K]).

Results: The absence of legally recognized customary marine tenure emerged as the primary driver of ecological decline and resource conflicts. Although local communities possess strong customary institutions, they lack formal authority to regulate access and enforce sanctions. Enggano has mapped a three-nautical-mile customary marine territory, Pasar Seluma has initiated marine spatial mapping, and Kaur communities have implemented temporary octopus habitat closures and ecological monitoring since 2020. These initiatives are consistent with Ostrom's design principles but remain legally unenforceable under the current governance framework.

Conclusion: Recognizing customary marine rights and establishing rights-based co-management through a Customary Marine Council are essential for strengthening community authority, restoring coastal ecosystems, limiting exploitative access, and advancing multispecies justice in Bengkulu.

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INTRODUCTION

Coastal Bengkulu is an active site of contestation between the logic of community, which has governed shared resources across generations, and the logic of capital, which seeks to absorb, convert, and extract. From Enggano Island to the fishing markets of Pasar Seluma and the coastal villages of Linau and Merpas in Kaur, pressures on coastal space emerge from multiple directions simultaneously. Industrial trawl fleets operate in traditional fishing waters without effective exclusion mechanisms. Mangrove ecosystems are converted for capital-intensive aquaculture. Upstream mining activities generate sedimentation that smothers seagrass beds. Spatial planning instruments, despite their equitable discourse, structurally facilitate processes of accumulation.

These local pressures form part of a global expansion of ocean extraction that Jouffray et al. (2020) describe as the blue acceleration (Hutajulu, 2025).

This is not a local anomaly. Rather, it represents a regional manifestation of a structural contradiction between capitalist economies and ecological systems. Ertör (2023) demonstrates that fisher movements worldwide increasingly frame such conflicts as struggles for blue justice. Angus (2016) argues that ecological crises are not merely the consequences of regulatory failure or technical negligence; they are the logical outcomes of a system that transforms nature into capital and treats communities as externalities (Nyberg & Wright, 2025). The degradation of seagrass ecosystems in Linau and Merpas, declining fish stocks around Enggano, and trawl conflicts in Pasar Seluma are local manifestations of this broader structural pattern.

Two classical frameworks underpin the study of shared resources: Hardin's (1968) tragedy of the commons and Ostrom's (1990) institutional design principles (Mondal & Chakraborty, 2026). However, neither framework alone explains why functioning community institutions remain unrecognized or why instruments such as the *RTRW* (*Rencana Tata Ruang Wilayah*) and *RZWP3K* (*Rencana Zonasi Wilayah Pesisir dan Pulau-Pulau Kecil*), despite being designed around principles of spatial justice, may operate as instruments of exclusion. To address these limitations, this study incorporates Angus's ecosocialist concept of metabolic rift and a multispecies justice perspective that recognizes non-human species as integral members of the coastal commons.

Rather than treating these theories as separate analytical layers, we integrate them into a single analytical framework: the Commons, Rift, and Justice (CRJ) framework. This framework connects a structural analysis of capital and spatial relations, an institutional analysis of commons governance, and a relational understanding of justice extending across species. It enables the governance crisis to be examined simultaneously across multiple scales.

The fieldwork also reveals a development overlooked in previous studies. Since 2020, the research communities have begun constructing the institutional foundations of commons governance independently. Communities in Kaur have implemented temporary octopus habitat closures and habitat monitoring initiatives. Pasar Seluma communities have initiated marine spatial mapping activities. Enggano communities have completed participatory mapping of a three-nautical-mile customary sea territory measured from the coastline. These practices correspond with Ostrom's principles; however, they currently lack formal legal recognition.

While Hardin (1968) and Ostrom (1990) provide foundational frameworks for understanding commons governance, and Angus (2016) offers a structural explanation of ecological crises, no existing study has integrated these three theoretical traditions into a unified analytical framework for marine governance in Indonesia (Nyberg & Wright, 2025). Previous empirical studies on customary marine governance in Indonesia, including Satria et al. (2010) on *awig-awig* in Lombok, Saptanno & Timisela (2024) on *sasi* in Maluku, and Halim et al. (2020) on territorial-based fisheries management, have examined institutional arrangements separately without connecting them to the structural political economy of capital accumulation or extending the analysis to non-human species (Munier & Mamka, 2024; Yulianingsih et al., 2022). Ariando (2023) examined customary sea tenure in Southeast Sulawesi but did not address the spatial planning instruments that mediate state-community-capital relations. Collectively, these studies do not fully explain why functioning community institutions are systematically denied legal recognition despite demonstrating alignment with Ostrom's design principles.

Research Questions: (1) How does the CRJ framework explain the structural, institutional, and relational dimensions of marine governance failure in coastal Bengkulu? (2) Through what mechanisms do the *RTRW* and *RZWP3K* shift from instruments of spatial justice into instruments of capital accumulation? (3) How do community-initiated governance practices since 2020 align with Ostrom's design principles, and what factors prevent their legal recognition? (4) What rights-based governance framework can transform existing community initiatives into recognized co-management authority?

This study makes three novel contributions. First, it develops the Commons, Rift, and Justice (CRJ) framework as an integrated analytical tool combining commons governance theory, ecosocialist metabolic rift analysis, and multispecies justice perspectives for marine governance research. Second, it documents previously unrecorded community conservation initiatives (2020–2025) that demonstrate autonomous institutional capacity. Third, it proposes a rights-based

Community-Based Marine Management (CBMM) framework with a Customary Marine Council as its institutional foundation.

Theoretically, this research advances the integration of ecosocialist political ecology with Ostromian institutional analysis and multispecies justice scholarship. Practically, the proposed CBMM framework provides a policy blueprint for transforming community-based marine governance initiatives into legally recognized co-management structures, applicable beyond Bengkulu to other Indonesian coastal regions experiencing similar capital–commons contradictions.

This article pursues five objectives. First, it examines marine governance across the three research sites through the integrated CRJ framework. Second, it demonstrates how the *RTRW* and *RZWP3K* shift from instruments of spatial justice into mechanisms of capital accumulation. Third, it traces the mechanisms of metabolic rift affecting Bengkulu's coastal ecosystems. Fourth, it extends the analysis to non-human species by examining the Enggano sea turtle as a biocultural keystone species. Fifth, it proposes a rights-based Community-Based Marine Management (CBMM) framework that transforms existing community initiatives into recognized co-management authority.

We integrate three bodies of theory into a single analytical framework. The first pillar is institutional and defines the rules governing the commons. The second pillar is structural and explains the political economy of coastal space. The third pillar is relational and establishes the ethical scope of governance. Each pillar addresses dimensions that cannot be fully explained by the others. Together, they constitute a unified analytical lens, which we refer to as the Commons, Rift, and Justice (CRJ) framework.

Hardin (1968) developed his argument through the example of a shared pasture. Each herder receives the full benefit of adding an additional animal, while the costs of overgrazing are distributed among all users (Mondal & Chakraborty, 2026). As a result, the pasture deteriorates. Hardin concluded that rivalrous resources under open-access conditions tend toward degradation and that privatization or state control is necessary to prevent collapse. In coastal fisheries, this logic explains why trawl operators continue exploiting traditional fishing waters despite observable ecological damage. Each operator has an incentive to maximize extraction before others do.

Hardin's thesis contains one critical conceptual limitation: it equates the commons with open access. These concepts are not identical. A genuine commons is characterized by collectively negotiated rules governing access and resource use. What fails is not necessarily the commons itself, but rather the absence of recognition and enforcement of its governing institutions. Hardin (1998) later acknowledged this distinction by clarifying that the central problem lies in unmanaged commons. In Bengkulu, communities govern their coastal commons through customary practices, yet the state does not provide adequate recognition. Consequently, these areas effectively become open-access spaces for external actors.

Ostrom (1990) challenged Hardin's determinism through extensive empirical evidence. Across continents and historical periods, she identified numerous communities capable of governing commons effectively without relying on privatisation or centralised state control. These successful arrangements were synthesised into eight design principles (Hamad et al., 2025). Cox et al. (2010), through a review of 91 cases, found that clearly defined boundaries (Principle 1) and minimal recognition of the right to organise (Principle 7) were among the strongest predictors of successful commons governance. These are also the two principles most consistently absent across the three Bengkulu sites (Sukmana & Yumitro, 2026). Baggio et al. (2016) further demonstrate that these principles function collectively rather than independently, meaning that weakness in one principle can undermine the effectiveness of the entire institutional system (Sukmana & Yumitro, 2026). This absence is not accidental; rather, it reflects governance choices that maintain conditions favorable for capital-driven open access. Table 1 maps Ostrom's eight principles against governance conditions in Bengkulu and identifies community responses that have emerged since 2020.

Table 1

Ostrom's design principles, institutional deficits, and emerging community responses in Bengkulu's coastal zone (adapted from (Ostrom, 1990); field data, authors, 2020 to 2025)

No.	Ostrom design principle	Condition and deficit in Bengkulu	Emerging community response (2020 to 2025)
1	Clearly defined boundaries	Traditional territories exist but lack legal recognition (recognition deficit)	Enggano completed a three nautical mile customary sea map; Pasar Seluma began marine area mapping
2	Rules fit local conditions	Rich customary norms exist but lack legitimacy (legitimacy deficit)	Kaur set seasonal octopus closure rules suited to local reefs
3	Collective choice arrangements	Minimal consultation; decisions imposed from above (participation deficit)	Closure dates and monitoring set collectively at village level in Kaur
4	Monitoring	Informal patrols exist but lack standardization (capacity deficit)	Kaur runs habitat monitoring and a smartphone violation log since 2020
5	Graduated sanctions	Social sanctions exist but carry no legal force (enforcement deficit)	Closures rely on social compliance; legal backing still absent
6	Conflict resolution mechanisms	Customary deliberation exists but is not state-facilitated (accessibility deficit)	No change; disputes with trawlers still lack a state forum
7	Minimal recognition by the state	Systematically absent (fundamental deficit)	No change; maps and closures still lack legal force
8	Nested enterprises	Extreme fragmentation across agencies (coordination deficit)	Akar and Universitas Bengkulu partnership offers a nascent nested structure

Angus (2016), in *Facing the Anthropocene*, develops the concept of metabolic rift, drawn from Marx and elaborated by Foster (2000), and extended to the present ecological crisis in more recent ecosocialist work (Foster, 2022). Capitalism ruptures the metabolic cycles between society and nature. It treats nature as a free input and a free waste sink. The result is the steady breakdown of the cycles that sustain life. Angus calls the present the Capitalocene rather than the Anthropocene, because the driver is a specific economic system, not humanity in general. This shifts attention from individual fault to systemic design. The operator who clears a reef is an agent of an accumulation logic that rewards extraction and penalizes care.

In coastal ecosystems, metabolic rift operates through three layers. Extraction removes fish and other biota faster than the system can regenerate them. Conversion transforms mangroves, seagrass beds, and reefs into ponds, jetties, and industrial zones. Pollution introduces organic and chemical waste from upstream sources into coastal ecological networks. These three layers reinforce one another and slow ecological recovery.

Why are working community institutions denied recognition, and why do justice instruments facilitate exclusion? Lefebvre (1991) argues that space is not a neutral container but a social product shaped by power (Musa, 2025). The RTRW and RZWP3K reflect who holds authority over spatial definition and regulation. When capital has greater access to planning processes than communities do, these instruments produce spatial arrangements that serve capital, regardless of their stated objectives. Harvey's (2003) concept of accumulation by dispossession identifies the mechanism

through which commons become privatized or transformed into capital-productive spaces through legal and administrative means (Johnson, 2026). State licensing that transfers traditional fishing rights to trawl operators represents a clear case in coastal Bengkulu. Barbesgaard (2018) refers to this process as ocean grabbing, in which blue growth policies redirect marine spaces and resources toward capital accumulation (Barbesgaard, 2025).

Angus (2017) argues that metabolic rift cannot be repaired through technical regulations or partial institutional adjustments alone (Brown, 2025). Repair requires a transformation in the relationship between communities and ecosystems: recognition of community rights, redistribution of governance authority, and constraints on capital’s ability to appropriate the commons. In his account, ecosocialism holds that ecological and social crises share a common root: a system that prioritizes accumulation over the renewal of life. Therefore, any meaningful response must address this structural cause rather than merely its symptoms (Angus, 2017; Brown, 2025).

The first two pillars are anthropocentric. They govern rules and rights among humans. However, the coastal crisis is also a crisis of interspecies relations. Schlosberg (2007) extends environmental justice to include nature, recognizing non-human species as having moral standing rather than treating them merely as resources (Vikraman Nair, 2025). Plumwood (2002) rejects the human–nature dualism that legitimizes exploitation (Rau & Edmondson, 2022). Whyte (2018) connects Indigenous environmental justice with responsibilities toward non-human kin. Tsing (2015) and Haraway (2016) argue that survival in damaged landscapes depends on maintaining relations among species rather than severing them (Muli, 2024). Recent scholarship consolidates these arguments into a multispecies justice research agenda (Celermajer et al., 2021; Chao et al., 2022). From this perspective, the commons includes other living beings that inhabit and share the same ecological space.

Some species carry meanings beyond their market value. Berkes (2009) describes species that represent cultural identity and indicate ecosystem health (Pilving et al., 2026). Maffi (2005) identifies the relationship between biological and cultural diversity as biocultural diversity (Uddin, 2025). We refer to such species as biocultural keystone species. Their loss represents both an ecological and cultural loss. Recent research warns that the Indigenous and local knowledge systems supporting this biocultural diversity are themselves under threat (Ayeni et al., 2026; Fernández-Llamazares et al., 2021). This concept provides an analytical framework for understanding the Enggano sea turtle case.

The three pillars are complementary rather than competing. Hardin identifies the symptom: open access encourages overexploitation. Ostrom proposes the institutional remedy: appropriate community-based rules can prevent such outcomes. Angus identifies the structural cause: capital disrupts the metabolism between communities and ecosystems, while the state mediates this disruption through the production of space. Multispecies justice defines the moral scope of governance: governance must protect relationships across species, not merely regulate human access to resources.

Read together, the pillars form a single causal chain. Capital reshapes coastal space and disrupts ecological cycles, representing the structural layer. The state fails to recognize community-based governance systems, producing conditions of de facto open access, representing the institutional layer. The resulting extraction disrupts relationships between communities and biocultural keystone species, such as the turtle, representing the relational layer. This same chain points toward a unified intervention. Recognition of customary marine rights and rights-based co-management operates across all three pillars simultaneously. It restores boundaries and recognition at the institutional level. It limits capital’s access to coastal space at the structural level. It protects the network of species upon which communities depend at the relational level. Table 2 presents the proposed framework.

Table 2
The Commons, Rift, and Justice (CRJ) framework. The three pillars form one causal chain from structural drivers, to institutional failure, to the severance of multispecies relations, addressed by a single policy lever

The Commons, Rift, and Justice (CRJ) framework
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Structural pillar	Institutional pillar	Relational pillar
Metabolic rift and the production of space (Angus; Lefebvre; Harvey). Capital breaks the metabolism between communities and ecosystems and reshapes coastal space through accumulation by dispossession.	Commons governance (Hardin; Ostrom). Open access drives overexploitation; community rules can govern the commons, but only with clearly defined boundaries and state recognition.	Multispecies justice (Schlosberg; Plumwood; Whyte). Governance must protect relations among humans and non-human kin, including biocultural keystone species.
Single policy lever: recognition of customary sea rights and rights-based co-management acts on all three pillars at once.		

METHOD

We used a qualitative comparative case study approach (Bartlett & Vavrus, 2017; Huntjens & Kemp, 2026; Yin, 2018) combined with critical discourse analysis of policy documents. We selected the three sites purposively to represent distinct ecological, social, and institutional conditions under similar pressures arising from open access and distortions in spatial planning instruments.

We collected primary data through three approaches. First, systematic field observations conducted from January 2023 to September 2025 covered fishing patterns, ecosystem conditions, conflict dynamics, and community conservation initiatives documented in this study. Second, in-depth semi-structured interviews were conducted with 47 key informants, including traditional fishers, customary leaders, village and sub-district officials, fisheries and coastal management staff, and environmental NGO practitioners. Third, two rounds of focus group discussions were conducted at each site, resulting in six discussions involving 12 to 18 participants per session.

Secondary sources included the Bengkulu Province RZWP3K 2020–2040; the RTRW documents of Seluma and Kaur Regencies; fishing enterprise licensing records; conflict registries from the marine and fisheries department; ecological monitoring datasets from Universitas Bengkulu; and *Akar Global Inisiatif* field reports from 2020 to 2025. These reports documented the octopus closure initiatives in Kaur, marine area mapping activities in Pasar Seluma, and customary sea mapping practices in Enggano.

Analytical Procedure and Coding: Interview transcripts, observation field notes, and policy documents were analyzed through a systematic coding process. First-cycle coding employed descriptive codes derived from the three CRJ pillars (structural, institutional, and relational). Second-cycle coding identified pattern codes that linked empirical observations to theoretical constructs (e.g., “recognition deficit,” “metabolic rift mechanism,” and “biocultural keystone loss”). The codes were organized into a thematic matrix that cross-referenced the three study sites with the eight Ostrom design principles and the three CRJ pillars. The coding process was conducted manually through iterative comparisons among researchers to ensure inter-coder reliability.

Informant Selection and Characteristics: The 47 key informants were selected using purposive and snowball sampling techniques. The sample comprised 18 traditional fishers (six per site, stratified by age and fishing method), nine customary/community leaders (three per site), six village and sub-district officials, five fisheries and coastal management government staff members, five environmental NGO practitioners, and four academics from Universitas Bengkulu. Informants ranged from 28 to 72 years of age, with fishing experience ranging from 8 to 45 years. The gender distribution reflected the male-dominated nature of the fishing sector (40 male and 7 female informants, including fish market traders and women community leaders).

Research Ethics: All informants provided verbal informed consent before participating in the interviews. Participants were informed of the research objectives, their right to withdraw, and the anonymization of personal identifiers in publications. Community validation forums at each site ensured that the findings were reviewed and approved by participants before finalization. The research adhered to the ethical guidelines established within Universitas Bengkulu’s research ethics framework.

We analyzed the data using two analytical frameworks. The Institutional Analysis and

Development framework (McGinnis & Ostrom, 2014; Pei & Li, 2026) was used to map action arenas, actors, rules-in-use, and outcomes at each site. Critical Discourse Analysis (Cunneen & Rieder, 2026; Fairclough, 2013; Mullet, 2018) was applied to examine the gap between spatial justice rhetoric and the allocation practices embedded within the RTRW and RZWP3K. We triangulated the findings through member checking conducted during community validation forums at each site.

RESULTS AND DISCUSSION

Enggano Island: metabolic rift at the periphery and a customary sea map from below

Enggano lies off the southwestern coast of Sumatra. Approximately 3,000 people live on the island across six indigenous clans. The island maintains a relatively intact coastal ecosystem, including coral reefs, seagrass meadows that support economically important fish species and dugongs, and turtle nesting beaches that are among the most significant in Sumatra. This condition is not solely the result of geographical isolation. Rather, it is sustained by a generations-old customary system that regulates fishing schedules, permitted gear, and access to specific zones.

The customary system has not received formal recognition under Indonesian positive law. The resulting condition reflects what Angus (2016) describes as a metabolic rift. Vessels from outside the island, including bottom trawlers, enter traditional fishing areas without effective exclusion mechanisms (Nyberg & Wright, 2025). The ecological and social cycles maintained by the customary system are disrupted under increasing extractive pressures from external actors. Based on semi-structured interviews with 12 senior Enggano fishers (average fishing experience: 30 years), respondents consistently reported catch declines of up to 60 percent over the past decade, particularly among high-value reef species. This figure represents community-perceived data triangulated across multiple informants rather than systematic ecological monitoring, as no longitudinal fisheries stock assessment currently exists for Enggano waters.

The Bengkulu Province RZWP3K 2020–2040 classifies the waters surrounding Enggano as a General Use Zone with a capture fisheries sub-zone. This classification permits various forms of resource exploitation and does not grant exclusive rights to the indigenous community. The community has sought recognition of a three-nautical-mile customary sea territory, a claim that could be grounded in Law No. 27 of 2007 on the Management of Coastal Areas and Small Islands and Constitutional Court Decision No. 35 of 2012. However, the zoning document does not accommodate this claim. This condition reflects what Soja (2010) terms spatial injustice: a process that appears administratively neutral but distributes spatial rights unequally (Rocco, 2026). The community participates in the planning process as an object of consultation rather than as a rights-holder.

The community has not waited for formal recognition. By 2025, it had completed participatory mapping of its customary sea territory, establishing a boundary extending three nautical miles from the coastline. The map documents clan territories, fishing grounds, turtle nesting beaches, and seagrass areas. In Ostrom's framework, the community has independently operationalized Principle 1 by establishing clearly defined boundaries. In Lefebvre's terms, the community is producing space from below by asserting its own definition of coastal space against the spatial framework embedded in the RZWP3K. The map provides a strong foundation for a formal tenurial claim. However, its limitation remains legal: without state recognition, the boundary has no enforceable authority over external vessels. Consequently, the recognition deficit identified in Ostrom's Principle 7 remains the primary institutional constraint.

Direct testimony from informants reinforces this finding. A senior customary leader in Enggano stated during an interview: "We have always known our sea boundaries. Our grandfathers fished within these waters and respected the zones of other clans. The map only puts on paper what we have lived for generations" (Informant E-03, customary leader, age 64, interviewed March 2024). A younger fisher added: "The trawlers come because they know we have no paper to stop them. The map is our paper now, but the government must stamp it" (Informant E-07, fisher, age 34, interviewed April 2024).

The Enggano sea turtle: multispecies justice and customary sea rights

In Enggano, the sea turtle is not merely an ecotourism asset. It is a central cultural symbol for the six clans. The turtle functions as a biocultural keystone species: a marker of community identity, a reference point in customary practices, and an indicator of coastal ecosystem health. Enggano's

nesting beaches rank among the most important in Sumatra. Their significance for the community extends far beyond population counts.

Outside pressures threaten the turtle through several pathways simultaneously. Trawl vessels capture turtles as bycatch. Gautama et al. (2022) demonstrate that simple gear modifications can reduce turtle bycatch in Indonesian small-scale fisheries by more than half. The loss of seagrass habitats removes the forage base for turtles and dugongs, while disturbances on nesting beaches disrupt reproductive processes. In Angus's (2016) terms, this represents metabolic rift in its multispecies form: the rupture of a long-standing relationship between the Enggano community and the turtle that sustains its collective identity (Nyberg & Wright, 2025). The turtle's decline is therefore both an ecological loss and a form of cultural erosion.

This perspective reframes customary sea rights. Enggano's rights are not limited to human access to marine resources; rather, they protect a network of relationships among people, turtles, seagrass ecosystems, and coral reefs. Customary rules regarding seasonal schedules, fishing gear, and spatial zones already contribute to turtle and habitat protection in practice. The customary sea map now documents nesting beaches and seagrass areas within the claimed territory, transforming a relational claim into a spatial one. The remaining challenge is legal recognition. Without formal acknowledgement, these protections lack enforceable authority, and state inaction allows the multispecies network to continue deteriorating.

The RZWP3K classification further intensifies the problem. It evaluates marine areas primarily through their extractive potential while overlooking their function as critical habitats for turtles and dugongs. Genuine spatial justice must consider the interests and ecological needs of non-human species, rather than merely distributing access among human actors. The turtle case demonstrates that customary sea rights and multispecies justice are interconnected components of the same governance agenda.

Pasar Seluma: trawl conflict as accumulation by dispossession and the start of marine mapping

Pasar Seluma is home to approximately 850 small-scale fishing households that depend on catches within a 12-nautical-mile coastal zone. Conflict with trawl fleets represents the most visible and economically damaging form of competition at this site. The Seluma Regency Fisheries Department recorded 34 conflict incidents between traditional fishers and trawl vessels from 2022 to 2024, of which only seven reached formal resolution.

Viewed through Harvey's (2003) concept of accumulation by dispossession, trawl operations represent a legally mediated transfer of access. Fishing enterprise licences shift control over marine space from local communities, which lack formal licensing authority, to capital-based actors that possess such permits (Johnson, 2026). No compensation is provided, and no prior consultation process takes place. The transfer occurs entirely through administrative procedures.

A critical discourse analysis of the Seluma RTRW reveals an internal contradiction. The vision statement promotes a regency that is advanced, just, and sustainable, based on local resources. However, the coastal allocation provisions contain no explicit clause protecting traditional fishing grounds from large-scale licensing. The term just functions primarily as rhetorical language rather than as an operational mechanism. Applying Fairclough's (2013) framework, the document demonstrates three recurring patterns: the use of inclusive sustainable development discourse without binding institutional mechanisms; the absence of indigenous and customary community rights as recognized legal subjects within technical zoning arrangements; and the implicit prioritization of investment and economic growth over community-based protection (Cunneen & Rieder, 2026).

Against this background, the Pasar Seluma community has begun mapping its marine territory. The mapping process remains at an early stage and aims to define traditional fishing zones while producing spatial evidence that can support territorial claims and requests for protection from trawl licensing. This initiative is significant because it begins to establish Ostrom's Principle 1, which concerns clearly defined boundaries, in a context where such recognition has previously been absent. As in Enggano, the central challenge is formal recognition. A map without legal authority cannot prevent licensed trawlers from operating; however, it transforms a diffuse grievance into a concrete spatial claim that enables communities to demand state acknowledgement.

Linau and Merpas: multi-layered metabolic rift and a community conservation regime since 2020

The villages of Linau and Merpas in Kaur face a more complex set of pressures than the other two sites. Beyond trawl competition, communities in these areas contend with sedimentation from upstream mining activities, domestic waste, and aquaculture expansion that continues to convert mangrove ecosystems. These pressures converge on a single coastal ecosystem from multiple directions.

This situation corresponds with Angus's (2016) description of combined and uneven ecological degradation. The ecosystem experiences upstream pressures from mining, mid-zone pressures from aquaculture, and open-sea pressures from trawling simultaneously (Nyberg & Wright, 2025). Each pressure reduces the ecosystem's capacity to recover from the others. Ecological monitoring conducted by Universitas Bengkulu recorded a 38 percent decline in seagrass cover between 2015 and 2024, with the rate of loss accelerating after 2021. Comparable patterns of seagrass decline across Southeast Asia have increased the social vulnerability of fishing communities (Quiros et al., 2021; Vikraman Nair, 2025).

What distinguishes Linau and Merpas is the presence of an active conservation regime established and maintained by the community. Since 2020, local communities have implemented temporary closures of octopus habitats and conducted continuous habitat monitoring. Under this temporary closure system, fishers collectively agree to suspend octopus harvesting within a defined reef area for a specified period before reopening the area for fishing. This practice allows octopus populations to grow and reproduce, thereby increasing catch volumes and income when the area is reopened. Similar patterns have been documented in octopus closure systems elsewhere in the Western Indian Ocean, where short-term closures significantly increased landings and income (Hamad et al., 2025; Oliver et al., 2015), although recent evidence indicates that closures alone may not be sufficient to reverse long-term population declines (McCabe et al., 2024). In Linau and Merpas, these closures are complemented by habitat monitoring activities that assess reef and seagrass conditions. A fisher-based monitoring group also records fishing activities using smartphones, reports violations to village authorities, and maintains systematic documentation of infractions.

The octopus closure regime provides direct evidence of the institutional pillar of commons governance. It operationalizes several of Ostrom's principles simultaneously: clearly defined boundaries of the resource and users (Principle 1), rules adapted to local ecological and social conditions (Principle 2), collective-choice arrangements in determining closure periods (Principle 3), and community-based monitoring mechanisms (Principle 4). In Angus's conceptualization, this represents ecological resistance from below, reflecting an attempt to restore metabolic cycles disrupted by external pressures. The closure system demonstrates that institutional capacity for co-management already exists at the village level without requiring external institutional design. This finding supports Ostrom's central argument that communities possess the capacity to govern shared resources, although such capacity is frequently constrained by limited legal recognition and insufficient state support.

A Kaur community leader explained the rationale behind the practice: "When we close the reef for three months, the octopus grow bigger and the price is better. Everyone agrees because everyone benefits. But the trawler does not care about our agreement" (Informant K-02, village head, age 52, interviewed June 2024). Monitoring data from the *Akar Global Inisiatif* field reports (2020–2025) indicate that post-closure octopus landings increased by approximately 40–60 percent in weight compared with pre-closure periods, although these gains were partially reduced by continuing habitat degradation caused by upstream sedimentation.

These findings are consistent with Oliver et al. (2015), who documented comparable short-term increases in octopus catches following periodic closure systems in Madagascar (Hamad et al., 2025). However, this study extends previous research by demonstrating that closure systems embedded within broader commons governance regimes encounter structural constraints that are less prominent in island fisheries contexts. Unlike the Malagasy cases, the Kaur closure system operates without formal legal recognition, leaving it vulnerable to external extraction pressures that communities lack the legal authority to prevent. This contrasts with Satria et al. (2010), who found that *awig-awig* in Lombok achieved partial recognition through village regulations, suggesting that

the extent of state engagement is a critical determinant of whether customary marine governance arrangements can achieve long-term durability (Yulianingsih et al., 2022).

The primary limitation remains legal and structural. The closure system depends heavily on social compliance and has no formal authority to prevent external trawl operations or regulate upstream pollution sources. A village that establishes a reef closure cannot prevent legally authorized trawl vessels from entering the area, nor can it prevent sediment flows originating from upstream mining activities. Without transforming the relationship between the state, capital, and commons-based governance, the regime remains primarily defensive and vulnerable. The community can govern octopus harvesting within the reef area, but it cannot regulate the licences and land-use decisions that contribute to reef degradation from outside the community's jurisdiction.

RTRW and RZWP3K: Between the Ideology of Spatial Justice and Capitalist Distortion *The ideological genealogy of spatial planning instruments*

Both the RTRW and RZWP3K originate from the state's commitment to spatial justice and planned, sustainable development. Law No. 26 of 2007 on Spatial Planning states that spatial planning seeks to create regional spaces that are safe, comfortable, productive, and sustainable through balanced development among regions. Similarly, Law No. 27 of 2007 on Coastal Area Management emphasizes principles of justice, equitable resource distribution, and community participation in coastal resource governance.

Within critical planning theory, spatial justice as conceptualized by Soja (2010) extends beyond the equitable physical distribution of space (Rocco, 2026). It concerns equitable access to decision-making processes that determine how space is utilized, who receives the benefits, and who bears the associated costs. Under this perspective, spatial justice requires meaningful participation from communities whose livelihoods are most dependent on spaces within the planning processes that regulate those spaces. The central question, therefore, is whether the design and implementation of these planning instruments effectively realize their normative commitments in Bengkulu.

Mechanisms of distortion: how justice instruments serve capital

Field analysis and document review identify four recurring mechanisms through which spatial justice instruments are transformed into tools that legitimize capitalist interests.

First, procedural exclusion in the planning process. Regulations require public consultation in the drafting of the RTRW and RZWP3K; however, in practice, the process is often ceremonial. Communities in Enggano, fishers in Pasar Seluma, and residents in Linau and Merpas were engaged merely as recipients of information regarding decisions that had already been finalized, rather than as rights-holders whose input could shape outcomes. This practice breaches the principle of Free, Prior and Informed Consent (FPIC), which should govern any planning process affecting indigenous rights. Larsen et al. (2024) demonstrate that FPIC functions as a standard of procedural justice only when local authorities recognize communities as decision-makers rather than passive audiences.

Second, the dominance of investment interests in zonation. An analysis of the Bengkulu Province RZWP3K 2020–2040 indicates that the General Use Zone, which permits large-scale exploitation activities, covers a substantially larger proportion of coastal areas than conservation and community protection zones. No provision explicitly allocates a zone as indigenous customary sea territory, and the concept is absent from the operative provisions. Queffelec et al. (2021) demonstrate that marine spatial planning can itself facilitate ocean grabbing when spatial allocation occurs without adequate recognition and protection of community rights (Narchi et al., 2024).

Third, the inconsistency between zonation and licensing mechanisms. Although the RZWP3K is positioned as the primary instrument governing marine spatial utilization, fishing enterprise licensing operates through a separate regulatory pathway that does not always comply with RZWP3K boundaries. Trawl licences that allow vessels to enter traditional fishing zones are frequently issued at the national level through the Online Single Submission (OSS) system without adequate verification of consistency with locally established marine zoning arrangements.

Fourth, the commodification of coastal functions within development narratives. The language used in the Bengkulu RTRW and RZWP3K positions extractive economic value as the primary benchmark for coastal utilization. Ecosystems are assessed according to their contribution to gross regional domestic product (GRDP) rather than their ecological functions as life-support

systems or their cultural significance for indigenous communities. This represents a clear manifestation of what Angus (2016) describes as the commodification of nature, namely the reduction of diverse ecological values into exchange values (Nyberg & Wright, 2025). Bennett et al. (2021) identify similar outcomes as among the social risks associated with blue growth, in which dispossession and exclusion disproportionately affect coastal communities (Van Noort et al., 2026).

RZWP3K as a contested arena: who defines public interest?

The central question in a critical reading of the RTRW and RZWP3K is who possesses the authority to define public interest as the foundation for spatial allocation. According to Habermas's (1984) theory of communicative rationality, the legitimacy of public decisions depends on procedures that enable all affected parties to participate in discourse on equal terms (Samat et al., 2026). The drafting process of Bengkulu's RZWP3K does not fully satisfy this standard.

Fishers from Pasar Seluma who approached the Marine and Fisheries Department to challenge a trawl license covering their traditional fishing grounds were informed that the license complied with national regulations. This interaction demonstrates the gap between formal legal legitimacy and substantive legitimacy rooted in the interests of communities that are most dependent on marine ecosystems. Peluso and Lund (2011) refer to this process as territorialization, describing it as the interconnected mechanism through which states and capital define resource boundaries in ways that consolidate control (del Giorgio, 2024). In coastal Bengkulu, this process operates through two mutually reinforcing mechanisms: licensing arrangements that facilitate capital access and the systematic non-recognition of indigenous claims that removes obstacles to capital expansion. Table 3 presents the contradictions between stated objectives and implementation realities.

Table 3

Contradictions between the ideological objectives and the implementation reality of the RTRW and RZWP3K in Bengkulu (document analysis and field data, authors, 2023 to 2025).

Dimension	Ideological objective (normative)	Implementation reality (Bengkulu)
Participation	FPIC; community as rights-holders	Ceremonial consultation; community as information recipients
Zonation	Balance of protection and productive functions	Dominance of general-use zones; indigenous rights not allocated
Licensing	Consistent with RZWP3K provisions	OSS system bypasses RZWP3K; trawl licenses enter traditional zones
Ecosystem values	Ecological, social, cultural, and economic	Reduced to extractive economic value (GRDP contribution)
Conflict	Resolved through RZWP3K mechanisms	RZWP3K provides no tenurial conflict resolution mechanism
Spatial justice	Equitable distribution of benefits across groups	Benefits accrue to capital; costs borne by indigenous communities

Capitalist distortion through the metabolic rift lens

Angus (2016) identifies one critical function of the state within capitalist systems as mediating the metabolic rift: providing the legal and administrative framework that allows capital to extract natural resources while presenting the process as development or serving the public interest (Nyberg & Wright, 2025). The RTRW and RZWP3K, in their current form in Bengkulu, perform precisely this mediating function.

This does not mean that these instruments cannot be reformed. Angus (2017) treats the state and its instruments as arenas of contestation rather than as monolithic structures (Brown, 2025). Reforming the RTRW and RZWP3K from within, through policy advocacy, strategic litigation, and stronger community representation in planning processes, is a necessary component of any realistic

strategy. Partial reform, however, is insufficient without changes to underlying power relations. Without such changes, even reformed instruments may experience regulatory capture ([Ghozali et al., 2026](#); [Stigler, 1971](#)), in which regulated interests come to dominate regulatory institutions. Reform of the RZWP3K must therefore be accompanied by stronger community capacity for meaningful participation and by accountability mechanisms that enable communities to formally challenge zoning decisions that violate their rights.

Transformative Framework: Rights-Based, Justice-Grounded CBMM

Maritime tenurial rights recognition as metabolic rift correction

Formal recognition of maritime tenurial rights is an essential first step toward repairing the metabolic rift in Bengkulu's coastal zone. This is not a concession granted by the state to communities; rather, it addresses the historical exclusion produced when the state facilitated capital's expansion into common-pool resource territories. In Ostrom's terms, it fulfils two design principles that have been most consistently absent: clearly defined boundaries (Principle 1) and minimal recognition of the right to organize (Principle 7).

The community initiatives currently under way provide the foundation for this process. The Enggano customary sea map and the Pasar Seluma marine mapping initiatives already provide the participatory mapping required for formal recognition. Available legal pathways include the registration of customary sea territories through participatory mapping that produces official cartographic records and Free, Prior and Informed Consent (FPIC) documentation; advocacy for revising the RZWP3K to establish an explicit customary sea territory zone; utilization of Constitutional Court Decision No. 35 of 2012 as a legal precedent for customary maritime tenure claims; and strategic litigation when administrative channels remain inaccessible. Halim et al. (2020) demonstrate how Indonesian customary marine tenure systems, such as *petuanan laut*, can be recognized as territorial use rights that provide communities with both exclusion rights and tenure security ([Munier & Mamka, 2024](#)).

Structural reform of the RTRW and RZWP3K

A Customary Marine Council at each site constitutes the institutional core of this framework. It is not merely a consultative forum; rather, it is a co-management institution with substantive authority that redistributes governance power from the state and capital towards communities.

Council composition must guarantee meaningful representation, including at least 30 percent women fishers ([Priya et al., 2026](#); [Wiber et al., 2012](#)), youth representatives, customary elders, fishers using diverse gear types, and government agency representatives acting as partners rather than controllers. Council authority should encompass zonation rules, seasonal closures, customary sanction mechanisms, and veto rights over external licensing decisions affecting customary sea territories. The octopus closures in Kaur and the customary sea mapping initiative in Enggano demonstrate the types of governance arrangements that such a council would formalize and protect.

The Customary Marine Council: operationalizing Ostrom in an ecosocialist frame

The monitoring system integrates traditional ecological knowledge with modern scientific approaches. Community rangers trained in GPS use and standardized monitoring applications, combined with periodic scientific transects conducted collaboratively with Universitas Bengkulu, can produce a monitoring system that is both comprehensive and cost-effective ([Rodrigues et al., 2026](#)). The habitat monitoring currently operating in Kaur represents a functional prototype that can be scaled across the three research sites.

Monitoring data serve two primary functions: enforcing governance rules and documenting the processes of metabolic rift. The data record rates of seagrass loss, shifts in catch composition that indicate changes in stock structures, and the impacts of upstream activities on coastal water chemistry. Such documentation provides an evidence base for legal claims and policy advocacy by transforming community observations into recognized scientific and juridical knowledge.

Participatory monitoring and metabolic balance restoration

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Graduated sanctions and correcting accumulation by dispossession

Ostrom's graduated sanctions, interpreted through Angus's lens, function as a mechanism to constrain accumulation by dispossession at the community level. Social sanctions for minor violations committed by community members; administratively recognized fines for repeated violations; customary sanctions endorsed by local government, such as temporary exclusion from community landing facilities for moderate violations; and criminal enforcement through the Marine Police for serious violations by trawl operators must form a coherent system supported by a formal Cooperation Agreement between the Customary Marine Council and state enforcement agencies. The octopus closures demonstrate why this institutional arrangement is necessary. They currently depend largely on social compliance; therefore, they require legal recognition to move from informal social pressure toward enforceable sanctions.

The licensing system also requires reform. Every new license application for coastal activities affecting customary sea territories must undergo a social-ecological impact assessment in which the community acts as an evaluator rather than merely as a consulted party. The findings of these assessments must carry legal authority.

Economic diversification as an alternative to extraction logic

Viable economic alternatives are a structural component of the framework rather than an additional intervention. Without alternative livelihoods, restrictions on catch levels will encounter resistance from economically vulnerable fishers and create opportunities for co-optation by capital. Recommended programs include fisheries cooperatives to strengthen collective bargaining power; value-added processing for smoked and refrigerated products; community-based ecotourism anchored in reef ecosystems and turtle conservation assets in Enggano; and Marine Stewardship Council certification for responsibly managed fisheries products.

Allison et al. (2012) demonstrate that co-management programs incorporating economic empowerment achieve higher success rates than programs focused solely on catch regulation ([Xuan et al., 2026](#)). Cohen et al. (2019) argue that small-scale fisheries require a secured and just position within the blue economy to sustain such gains ([Riani et al., 2026](#)). The octopus closures already demonstrate this regenerative logic in practice: by allowing stocks to recover, they increase catch productivity and income when areas are reopened. Economic diversification grounded in the commons transforms this single case into a broader model that renews resources rather than depleting them.

Multispecies justice in co-management design

The framework must incorporate multispecies justice as an explicit governance mandate. The Customary Marine Council should be responsible for protecting biocultural keystone species, such as turtles and dugongs, together with their associated habitats. Core protection zones for turtles and seagrass ecosystems should be incorporated within customary sea territories, with binding access regulations. Enggano's customary norms concerning turtles, including restrictions on harvesting and the protection of nesting beaches, should obtain legal recognition through co-management arrangements. The customary sea map, which already documents these areas, provides the council with an established spatial foundation for conservation governance.

The indicators of success must also be broadened. Success has traditionally been measured primarily through human catch outcomes. A more equitable set of indicators should include the recovery of keystone species, the number of turtle nesting events, and bycatch reduction rates.

Participatory monitoring should routinely document these ecological indicators. Social-ecological impact assessments for each new license must evaluate impacts on keystone species rather than focusing exclusively on human livelihoods. In this way, customary sea rights function as an instrument of justice both among human communities and among multiple species.

Challenges and Mitigation Strategies

Capital resistance and the criminalization of communities. Trawl fleet owners and large-scale aquaculture operators may pursue political lobbying, legal intervention, and the criminalization of communities seeking to protect marine resources. Mitigation requires a multi-actor alliance involving national and international NGO coalitions, investigative journalists, academics, and the international Indigenous rights community, capable of generating counter-pressure through domestic and international advocacy channels.

Regulatory capture in policy reform. The revision of RZWP3K is highly vulnerable to regulatory capture. Mitigation requires explicit mechanisms of public accountability, including mandatory documentation of all consultation meetings, transparent publication of draft documents at each stage, and formal grievance mechanisms through which communities can challenge zoning decisions that violate their rights.

Gender inequity in co-management structures. Women fishers carry a substantial share of the burden resulting from ecosystem degradation through their central roles in post-harvest processing and household food security; however, they remain among the most marginalized groups in decision-making processes. Gender quotas within the Customary Marine Council must be accompanied by sustained leadership development initiatives that address structural barriers to meaningful participation.

Climate change as a metabolic rift amplifier. Climate change intensifies existing metabolic rifts through coral bleaching, shifts in seasonal fish migration patterns, and increasing coastal hazards, which collectively weaken ecosystem recovery capacity (Cinner et al., 2020; Parravicini et al., 2026). Co-management institutions must therefore be designed with adaptive capacity, enabling them to update governance rules in response to monitoring data and incorporating scenario-planning approaches that anticipate climate-driven ecological shifts.

CONCLUSION

The marine governance crisis in coastal Bengkulu is not an anomaly. It is a regional manifestation of the global contradiction between the logic of the commons, which orients governance toward the reproduction of community life, and the logic of capital, which directs extraction toward accumulation without ecological limits.

The integrated CRJ framework enables the analysis to move beyond a purely technical institutional diagnosis. Hardin identifies the symptom: open access produces overexploitation. Ostrom prescribes the remedy: appropriate community institutions can prevent it. Angus adds the structural cause: capital ruptures the metabolism between communities and ecosystems, while the state mediates that rupture through the production of space. The multispecies justice lens adds the final dimension: governance failure disrupts not only human rights but also the relationships between communities and the non-human species that anchor their identities, as demonstrated by the Enggano sea turtle.

The fieldwork demonstrates that communities are already building the institutional foundations required by the framework. Enggano has mapped a three-nautical-mile customary sea territory. Pasar Seluma has initiated marine mapping efforts. Kaur has implemented temporary octopus closures and habitat monitoring since 2020. These initiatives enact Ostrom's design principles from below and demonstrate that the capacity for self-governance already exists. The binding constraints are the absence of formal legal recognition and the structural power of capital, mediated through the RTRW and RZWP3K frameworks.

The transformative framework does not underestimate the complexity of the challenge. Tenurial, institutional, and policy reforms must proceed simultaneously, supported by multi-actor alliances and sustained through a long-term perspective. The objective is to transform relationships among coastal communities, ecosystems, the state, and capital: from exclusion and extraction toward

recognition, reproduction, and justice. Governing the sea as a just and sustainable commons requires restoring coastal communities' rights to become subjects, rather than objects, of governance over the ecosystems that sustain their lives, while extending this recognition to the non-human species with which those lives are deeply intertwined. This represents the minimum requirement for justice.

This study makes three contributions to the scholarly literature. First, the CRJ framework advances interdisciplinary marine governance theory by demonstrating that institutional (Ostrom), structural (Angus), and relational (multispecies justice) analyses are complementary rather than competing explanations. Second, the concept of biocultural keystone species, applied to the Enggano sea turtle, extends multispecies justice scholarship by connecting species conservation with customary tenurial rights. Third, the critical discourse analysis of the RTRW and RZWP3K contributes to spatial justice literature by empirically documenting the mechanisms through which ostensibly equitable planning instruments facilitate accumulation.

Practical Implications: The proposed Community-Based Marine Management framework, anchored by a Customary Marine Council, offers a replicable policy model for Indonesian coastal regions where customary governance institutions exist but lack formal legal recognition. The framework is directly applicable to the ongoing revision of the Bengkulu Province RZWP3K and can inform national policy regarding customary sea rights under Law No. 27 of 2007.

Limitations: This study has several limitations. First, the 47-informant sample, while purposively selected to provide in-depth insights, may not capture the full diversity of perspectives within each community. Second, the ecological data (seagrass decline and catch estimates) rely partly on community perceptions rather than systematic ecological monitoring, which limits analytical precision. Third, the study focuses on three sites within a single province, and the transferability of the CRJ framework to other Indonesian regions requires further empirical validation. Fourth, the research period (2023–2025) may not fully capture long-term institutional dynamics.

Recommendations for Future Research: Future studies should: (1) test the CRJ framework in other Indonesian customary marine governance contexts, such as *sasi* in Maluku (Saptenno & Timisela, 2024) and *panglima laot* in Aceh; (2) develop quantitative indicators for measuring metabolic rift in coastal ecosystems to complement qualitative analyses; (3) conduct longitudinal studies tracking the institutional evolution of community conservation initiatives documented in this study; and (4) examine the political economy of RZWP3K revision processes to identify intervention points for strengthening community rights recognition.

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AUTHOR CONTRIBUTION STATEMENT

E.B. (Erwin Basrin) led the conceptualisation, methodology, critical discourse analysis, and writing of the original draft, and conducted the field research and policy analysis. S.W. (Septri Widiono) contributed the ecological monitoring data and its verification, supported the institutional analysis, and reviewed and edited the manuscript. Both authors read and approved the final version.

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