The Role of Indigenous Women in Deep-Sea Bureaucratic Decision-Making: A Case Study of the International Seabed Authority (ISA)

Andhika Yudhistira
International Relations, Parahyangan Catholic University, Bandung, West Java
8092401006@student.unpar.ac.id

Elisabeth Dewi
International Relations, Parahyangan Catholic University, Bandung, West Java
elisabeth.dewi@unpar.ac.id

Abstrak

Penelitian ini menganalisis bagaimana mekanisme birokrasi Otoritas Dasar Laut Internasional (International Seabed Authority/ISA) membentuk dan membatasi narasi ekologis perempuan Adat Pasifik dalam negosiasi Mining Code. Dengan menggunakan kerangka Feminist Political Ecology dan Bureaucratic Geopolitics, studi ini menyoroti kesenjangan epistemologis antara pengetahuan ekologis berbasis spiritualitas dan bahasa legalistik hukum internasional. Berdasarkan analisis dokumen atas rekaman publik ISA, laporan pertemuan, dan pernyataan organisasi pengamat, penelitian ini menemukan bahwa struktur birokrasi ISA yang didominasi perspektif maskulin-Barat menciptakan hambatan sistemik terhadap partisipasi substantif perempuan Adat. Tiga mekanisme pembungkaman utama diidentifikasi: dominasi epistemik hukum internasional, prosedur formal yang eksklusif, dan kekerasan epistemik terhadap pengetahuan spiritual. Meski demikian, perempuan Adat menunjukkan agensi melalui strategi perlawanan kreatif, pembangunan koalisi, dan penciptaan ruang alternatif. Studi ini memperluas kajian Feminist Political Ecology ke konteks laut dalam serta menawarkan rekomendasi kritis bagi reformasi struktural ISA dan pengakuan pengetahuan Adat.
Kata Kunci: Perempuan Adat, Otoritas Dasar Laut Internasional, Feminist Political Ecology, Bureaucratic Geopolitics, Mining Code

Abstract

This study investigates how bureaucratic processes within the International Seabed Authority (ISA) shape and constrain the participation of Pacific Indigenous women in Mining Code negotiations. Drawing on Feminist Political Ecology and Bureaucratic Geopolitics, it examines the disconnect between Indigenous women's spiritually grounded ecological knowledge and the legalistic, technocratic language of international law. Using a document analysis of public ISA records, meeting reports and statements by observer organizations, the research finds that the ISA's bureaucratic structure, which is largely shaped by masculine and Western norms, systematically limits Indigenous women's meaningful involvement in decisions about deep-sea ecosystems. Three key silencing mechanisms are identified: the epistemic dominance of international law, exclusionary formal procedures, and epistemic violence toward spiritual and relational forms of knowledge. Despite these constraints, Indigenous women exercise agency through creative resistance, coalition-building, and the formation of alternative spaces for advocacy and

knowledge-sharing. The study extends Feminist Political Ecology into the deep-sea context and offers policy recommendations focused on reforming ISA structures, recognizing Indigenous and traditional knowledge systems, and strengthening Indigenous peoples' procedural rights in global ocean governance.
Keywords: Indigenous Women, International Seabed Authority, Feminist Political Ecology, Bureaucratic Geopolitics, Mining Code

1. Introduction

The increasing global demand for deep-sea minerals, including cobalt, nickel, and manganese, to support the green energy transition has positioned the International Seabed Authority (ISA) as the sole regulator of mining in international seabed areas (Blanchard, Harrould-Kolieb, Jones, & Taylor, 2023). While extraction is framed as necessary for environmentally-friendly technology, it poses severe threats to incompletely understood deep-sea ecosystems (Miller, Thompson, Johnston, & Santillo, 2018). This paradox, destroying marine biodiversity to combat climate change, reveals fundamental tensions in global environmental governance. Pacific Indigenous communities maintain historical and spiritual relationships with the ocean, with women serving as guardians of traditional ecological knowledge and sustainability practices (Hviding, 1996; Vierros et al., 2020). Deep-sea mining threatens not only their livelihoods but also their cultural identity and spiritual connection to marine environments. Yet in the forums where the future of these waters is being decided, Indigenous women's voices are systematically marginalized and their knowledge dismissed as "unscientific" (Lixinski & Morgera, 2024).

The ongoing Mining Code finalization process will determine the future of deep-sea mining, yet representation and epistemological gaps persist in international forums (Pickens, Lily, Harrould-Kolieb, Blanchard, & Chakraborty, 2024). Understanding the power dynamics within international bureaucracy is important, particularly as Indigenous women face systemic exclusion from substantive participation in decisions that directly affect their communities and ancestral waters. This research asks: How do bureaucratic mechanisms at the International Seabed Authority (ISA) shape the ecological narratives of Pacific Indigenous women in Mining Code negotiations? This study employs a qualitative, interpretivist-critical approach, integrating Feminist Political Ecology and Bureaucratic Geopolitics frameworks to analyze the ISA as a gendered epistemological arena. Through document analysis of official ISA records, meeting reports and statements by observer organizations, this research reveals how international legal language operates as a technology of power that transforms or erases ecological-spiritual narratives. Throughout, "Indigenous women" is used as shorthand for a plural and internally differentiated category; Sections 3.3 and 4 specify where the evidence speaks to particular groups rather than to all Indigenous women.

The manuscript proceeds as follows: Section 2 establishes the theoretical foundation by reviewing literature on Feminist Political Ecology, Bureaucratic Geopolitics, and Indigenous women's participation in global environmental governance. Section 3 outlines the methodology, including data collection and analysis methods. Section 4 presents the analysis, examining bureaucratic barriers, epistemic violence, Indigenous women's resistance strategies, and the ISA's own institutional responses. Section 5 discusses theoretical contributions, including the proposed Deep-Sea Feminist Political Ecology framework, and policy implications, while Section 6 concludes

with the main argument and future research directions. This study demonstrates that the marginalization of Indigenous women's narratives is not simply a procedural issue, but an international bureaucratic system that remains colonial and patriarchal in structure.

2. Theoretical Framework and Literature Review

2.1. Feminist Political Ecology and Bureaucratic Geopolitics

Feminist Political Ecology (FPE) emerged as a critical intervention in environmental studies, challenging gender-blind approaches to conservation and natural resource management. Drawing on Dianne Rocheleau's foundational work, FPE examines the interaction between gender, environment, and political power, positioning women as agents of change rather than passive victims (Rocheleau, Thomas-Slayter, & Wangari, 1996). This framework critiques how environmental degradation differentially impacts women while simultaneously marginalizing their knowledge and participation in environmental governance. FPE scholarship emphasizes that environmental issues cannot be understood without considering gendered power relations and knowledge production (Elmhirst, 2011; Nightingale, 2006). In marine and coastal contexts, women play crucial roles in the maritime economy and ocean conservation through fishing, aquaculture, and traditional resource management (Alonso-Población & Siar, 2018). However, they face differential impacts from marine ecosystem degradation due to their distinct relationships with and dependencies on marine resources. Central to FPE is the recognition that women's ecological knowledge, based on lived experience and spiritual relationships with nature, contributes significantly to natural resource management (McGregor, 2004). This knowledge is often experiential, relational, and transmitted through oral traditions. Yet in international policy forums, such non-scientific knowledge is systematically marginalized, dismissed as "anecdotal" or "traditional" in contrast to "modern" scientific expertise (Pascual et al., 2023).

Graham T. Allison's Bureaucratic Geopolitics framework reveals how bureaucratic procedures, language, and protocols shape policy outcomes in ways that reflect and reinforce geopolitical interests (Kuus, 2015). International bureaucracy is not neutral; administrative structures, formal procedures, and institutional cultures embody particular worldviews and power relations. The hegemony of international legal language and technical-legal discourse leads to the exclusion of local and traditional knowledge through procedural formalization (Bosco, 2015). Bureaucratic processes create gatekeeping mechanisms that determine whose knowledge counts, whose voices are heard, and whose concerns are prioritized. These mechanisms operate through seemingly neutral procedures, requirements for accreditation, rules of order, technical language, documentation standards, that systematically favor certain actors while disadvantaging others. Gender and bureaucracy intersect through norms and practices that favor male participation, creating structural barriers to women's substantive involvement in decision-making spaces (Kuus, 2015).

2.2. Literature on ISA, Deep-Sea Mining Governance, and Indigenous Women in Global Environmental Governance

Recent scholarship on the ISA has examined governance challenges, including calls for pauses or moratoriums on deep-sea mining (Singh & Jaeckel, 2024), the current status of mining governance (Blanchard et al., 2023), regulatory drivers and outstanding issues (Pickens et al., 2024; Willaert, 2022), benefit-sharing questions (Wilde, Lily, Craik, & Chakraborty, 2023), and environmental law implications (Finkelstein & Chakraborty, 2024; Jones & Lily, 2025). This research highlights environmental impacts and knowledge gaps (Miller et al., 2018), biodiversity loss risks (Van Dover et al., 2017), and the lack of social legitimacy for deep seabed mining (Lily et al., 2023). Importantly, Lixinski and Morgera (2024) examine the cultural stakes of deep seabed mining, while Vierros et al. (2020) advocate for considering Indigenous peoples in ocean commons governance. However, limited research has specifically examined how bureaucratic mechanisms at the ISA intersect with gender to shape Indigenous women's participation and the reception of their ecological knowledge.

Indigenous women face unique challenges in environmental governance, positioned at the intersection of multiple forms of marginalization based on gender, race, geography, and economic status (Whyte, 2014). Their participation in international forums is constrained by structural barriers including limited resources, language differences, unfamiliarity with formal procedures, and discrimination (Lau, Kleiber, Lawless, & Cohen, 2021). Research demonstrates that gender assumptions hinder effective climate policy, with women's knowledge and leadership undervalued in decision-making processes (Lau et al., 2021). Cohen et al. (2016) apply a gender lens to adaptive capacity in social-ecological systems, revealing how gendered power relations shape vulnerability and resilience. McGregor (2004) emphasizes that Indigenous knowledge is essential for environmental futures, arguing that colonialism's epistemic violence continues through the dismissal of Indigenous ways of knowing. Indigenous women's ecological knowledge is often rooted in spiritual and relational understandings of nature. The ocean, for Pacific Indigenous women, is not merely a resource but an ancestor, a living entity with which they maintain reciprocal obligations (Hviding, 1996).

2.3. Integrated Theoretical Framework

This research integrates Feminist Political Ecology and Bureaucratic Geopolitics to argue that international bureaucracy functions as a gendered epistemological arena. The ISA's bureaucratic mechanisms reflect and reinforce knowledge hierarchies that marginalize Indigenous women's epistemologies. International legal language operates as a technology of power, transforming ecological-spiritual narratives into technical-legal arguments or rendering them invisible entirely. Three key concepts guide this analysis. First, epistemic violence refers to the systematic erasure of different ways of knowing, specifically the delegitimization of spiritual and relational knowledge as "unscientific" (McGregor, 2004). Second, translational politics describes the process of translating traditional ecological knowledge into bureaucratic language, resulting in loss of meaning and transformative power (Lixinski & Morgera, 2024). Third, bureaucratic silencing encompasses the formal and informal mechanisms that silence marginal voices, creating symbolic rather than substantive participation (Kuus, 2015). The conceptual assumption guiding this

research is that international legal language functions as a technology of power that transforms or erases ecological-spiritual narratives, while ISA bureaucratic mechanisms systematically marginalize Indigenous women's epistemologies.

3. Methodology and Research Approach

This qualitative research employs an interpretivist-critical approach, using the ISA as a case study of international environmental bureaucracy. The study examines how power, gender, and epistemology intersect within formal decision-making structures, focusing specifically on the Mining Code negotiation process. An interpretivist approach acknowledges that social realities are constructed through meaning-making processes, while the critical orientation interrogates power relations and seeks to reveal hidden structures of domination. The case study method allows for in-depth examination of the ISA as a bounded system, exploring the complex dynamics between bureaucratic procedures, knowledge hierarchies, and gendered participation (Ruddle, 1998). This approach is particularly appropriate for understanding how institutional mechanisms operate in practice and how actors navigate and resist bureaucratic constraints. The empirical basis of the study, including the sources, periods and selection criteria for each component, is summarized in Table 1.

3.1. Data Collection Methods

Data collection relied on document analysis of public records. The corpus was assembled so that every empirical claim in Section 4 can be traced to a dated and accessible source, and it comprises three kinds of record. The first is official ISA documents: the working group submission on underwater cultural heritage that proposes text for the draft exploitation regulations, an Assembly document on observer status, a Secretary-General's bulletin, a news release, the Authority's web page on stakeholder engagement, and a written submission lodged with the Secretariat. The second is meeting records: the Earth Negotiations Bulletin (ENB) summary reports on the Council and Assembly meetings of March and July 2025. The third is statements by observer organizations, as recorded by ENB, including statements by Pacific and Hawaiian organizations, among them an Indigenous community network. Table 1 itemizes the corpus.

The corpus covers records dated between June 2023 and December 2025. It is purposive, not a census of ISA records: items were selected for their bearing on Indigenous or cultural-heritage matters, observer participation, stakeholder consultation or gender, and it covers selected sessions rather than every session of the period. The study includes no interviews, no observation of proceedings and no collection of social media content. Its claims are therefore claims about what the institutional and organizational record shows, and they reflect that record only up to January 2026.

Table 1. Empirical corpus of the study

Component	Sources and period	Volume	Selection criteria
ISA documents	Working group submission on underwater cultural heritage, Rev. 5 (1 December 2025), proposing text for the draft exploitation regulations (ISBA/30/C/CRP.1); Assembly observer-status document ISBA/29/A/INF/12 (2024); Secretary-General's bulletin ISBA/ST/SGB/2024/1 (2024); news release on the S.H.E. webinar (8 December 2025); the stakeholder-engagement page; and a written submission lodged with the Secretariat (DSCC, 23 June 2023).	5 ISA items; 1 submission	Public documents issued by, or lodged with, an ISA organ or the Secretariat that bear on Indigenous or cultural-heritage matters, observer participation, stakeholder engagement or gender. Draft-regulation numbers follow the versions under negotiation at the dates cited and may differ in later revisions.
Meeting records	Earth Negotiations Bulletin summary reports for 17–28 March 2025 and 7–25 July 2025.	2 summary reports	Reports on Council and Assembly meetings at which Indigenous Peoples, cultural heritage, observers, stakeholder consultation or gender were discussed.
Statements by organizations	Tetiaroa Society, Te Ipukarea Society and Maui Nui Makai Network, as recorded by ENB (March 2025).	3 organizations	Observer organizations whose statements to an ISA organ on Indigenous participation are recorded by ENB.

3.2. Data Analysis

Analysis proceeded through four interconnected approaches. Thematic analysis identified main themes related to silencing mechanisms, resistance strategies, and epistemological conflicts. Data were coded inductively, allowing themes to emerge from the material while remaining attentive to concepts from the theoretical framework. Key themes included epistemic violence, translational politics, bureaucratic exclusion, coalition-building, and alternative space creation. Critical discourse analysis examined language, terminology, and framing in ISA documents versus Indigenous organizations' statements (Nightingale, 2006). This analysis revealed how certain concepts were defined, which metaphors and frames dominated official discourse, and how Indigenous women's language was received or reinterpreted. Particular attention was paid to moments when spiritual or relational language entered bureaucratic spaces and how such language was transformed or dismissed.

Intersectional analysis understood how gender, race, geography, and economic status interact in shaping marginalization (Cohen et al., 2016). This approach recognized that Indigenous women's exclusion cannot be understood solely through gender or race but requires attention to how multiple forms of difference intersect to produce specific patterns of disadvantage. Analysis examined how bureaucratic mechanisms differentially impact Indigenous women compared to other stakeholders. Triangulation compared data from various sources for validation, checking

whether patterns observed in official documents were confirmed in independent meeting reports and in organizations' own statements. Contradictions and discrepancies were explored as revealing tensions within the system.

In the analysis, differences among women were tracked, where the evidence allowed, along three dimensions. The first is territorial and legal status, for example citizens of sovereign Pacific Island states, peoples of non-self-governing or non-state-recognized territories, and diasporic or continental Indigenous communities. The second is organizational position: a community-based group, a regional network, a partnered international NGO or a state delegation. The third is the position of the relevant state on deep-sea mining. Following Crenshaw (1991), intersectionality is treated as a way of locating differently positioned women within the institution, not as a list of identities.

3.3. Positionality and Ethics

As outside researchers with no institutional ties to the ISA, we acknowledge our positionality and the ethical implications of representing Indigenous women's perspectives. This research is committed to transformative scholarship that centers marginalized voices and contributes to advocacy for structural change. However, we remain conscious of the risks of speaking for others and essentializing "Indigenous women" as a homogeneous category. We acknowledge that Indigenous women are diverse, with varying perspectives, priorities, and relationships to deep-sea mining issues. Pacific Indigenous communities are not monolithic, and women within these communities occupy different positions based on age, status, location, and political orientation. This research aims to document systemic patterns of exclusion while respecting the heterogeneity of Indigenous women's perspectives and experiences. Where possible, analysis draws on Indigenous women's own articulations of their concerns and strategies, using their language and frameworks rather than imposing external interpretations. These commitments are carried through the analysis: Section 4 flags where the evidence speaks for particular groups, and Section 5.1.2 treats differentiation among Indigenous women as a scope condition of the proposed framework.

3.4. Ethics of Using Public Statements by Indigenous Organizations

The study analyzes only publicly available documents and statements and involved no recruitment of, or contact with, research participants. Because no human participants were involved and all material is in the public domain, it falls outside the scope of research that ordinarily requires formal ethical review. The authors nevertheless adopted the safeguards described below, because the material concerns communities that have long been the subject of extractive research.

The analysis follows Indigenous data governance principles as well as general research-ethics guidance (Carroll et al., 2020; Tuhiwai Smith, 2021). The unit of analysis is the organization's public statement, not the individual speaker. Individuals are not named, and statements are attributed to the organizations that made them. Ceremonial, genealogical and other restricted knowledge, which communities have the right to control under Article 31 of the UN Declaration on the Rights of Indigenous Peoples (United Nations, 2007), is not reproduced. The study examines how political claims and spiritual references are received by the institution, not the content of sacred knowledge itself.

Consent was not sought for statements that organizations delivered to a United Nations body or published for a policy audience. Representation was not treated as a formality, however: the manuscript does not generalize organizations' statements to Indigenous women as a whole, and it distinguishes what the record shows from what it does not (Section 4). Representatives of the organizations named were not consulted before submission, which is acknowledged as a limitation (Section 5.3), and the authors welcome corrections from them.

4. Analysis

The analysis below is anchored in dated and verifiable records. Claims about institutional behavior are tied to named ISA documents and draft regulations (regulations 4 bis, 35, 93 bis, 94 and 95, and rule 82 of the Assembly's rules of procedure), to dated meetings (the 30th session in March and July 2025), and to statements by named organizations as recorded in ISA documents or in the Earth Negotiations Bulletin (ENB) (Table 1). Where a claim goes beyond what these records show, it is presented as an interpretation.

Two cautions about the unit of analysis apply throughout. First, "Indigenous women" is shorthand for a plural category whose members differ by territorial and legal status, by organizational position, and by the position of their state on deep-sea mining, which runs from calls for a moratorium or precautionary pause to sponsorship of an exploration contractor, as the Cook Islands does (ENB, 2025b). Second, the public record seldom identifies the gender or Indigenous identity of speakers, since ENB and ISA documents usually attribute observer interventions to organizations. Women's participation can therefore be documented here only through organizations' own statements, and each subsection closes by stating what the evidence can and cannot say about differences among women.

4.1. ISA Bureaucratic Structure as Participatory Barrier and Delegitimization of Spiritual-Relational Knowledge

The ISA's bureaucratic structure creates multiple barriers to Indigenous women's participation that operate at institutional, procedural, and cultural levels. Delegation composition reveals a systematic bias toward legal-technical expertise, with representatives predominantly drawn from international law and mining industry backgrounds (Blanchard et al., 2023). Social scientists, ecologists, and Indigenous community representatives remain marginal, ensuring that discussions prioritize legal-economic considerations over ecological-social concerns (Pickens et al., 2024).

Document analysis of ISA session records reveals that interventions from Indigenous representatives are infrequent and often relegated to side events rather than main sessions. When Indigenous women do gain speaking opportunities, their interventions are typically brief and framed as "statements" rather than substantive contributions to technical debates. The institutional structure positions Indigenous knowledge as supplementary commentary rather than essential expertise for decision-making about ocean ecosystems.

The 2025 sessions illustrate this positioning. At the Council's meeting in March 2025, the Tetiaroa Society said that ISA members continued to ignore the cultural traditions and input of Pacific Indigenous Peoples, and the Maui Nui Makai Network delivered a Hawaiian chant to bring the spirit of the ancestors into the negotiating space (ENB, 2025a). The chant entered the negotiating room as a ritual act rather than as a textual proposal.

Language and formal procedures present additional obstacles. Complex international legal jargon, rigid parliamentary procedures, and English language dominance create barriers for Indigenous women unfamiliar with formal protocols (Kuus, 2015). Technical discussions reference specific articles of the UN Convention on the Law of the Sea (UNCLOS), precedents from International Tribunal for the Law of the Sea cases, and specialized terminology regarding polymetallic nodules, hydrothermal vents, and cobalt-rich crusts. This technical-legal discourse privileges certain forms of knowledge while marginalizing others, particularly experiential and spiritual knowledge that does not fit legal categories.

The rules of procedure and the meeting records show how procedural rules govern speaking time, submission deadlines, and accreditation requirements. Indigenous organizations seeking observer status must navigate complex application processes, provide detailed organizational documentation, and demonstrate "relevance" to ISA's work, a requirement that itself embodies particular assumptions about what constitutes relevant knowledge. The procedural formality contrasts sharply with Indigenous communication practices that emphasize storytelling, relationship-building, and holistic understanding.

These thresholds are written into the rules. Under rule 82, paragraph 1(e), of the Assembly's rules of procedure, non-governmental organizations may participate as observers if the Secretary-General has entered into an arrangement with them under Article 169(1) of UNCLOS, or if the Assembly invites them and they have demonstrated an interest in matters before it, and observers may make oral statements only upon the invitation of the President and subject to the Assembly's approval (ISA, 2024a). The observer-status documents reviewed identify no separate category for Indigenous peoples' own institutions. Nor were Indigenous leaders part of the Secretariat's 2023 consultation on the draft Strategic Plan 2024–2028, as the Deep Sea Conservation Coalition (DSCC) pointed out in its written response of 23 June 2023 (DSCC, 2023).

The same gatekeeping logic appears in the draft text. In regulation 35, the Council may take into account the views of other observers, but the word "competent" before "observers" is bracketed, and the working group's co-facilitators recorded divergent views on whether it is appropriate to refer to competent observers and how they would be identified (ISA, 2025b).

Access and transparency remain severely limited despite ISA's stated commitment to stakeholder engagement. High participation costs including international travel, accommodation in Kingston, and time away from communities create prohibitive barriers for Pacific Indigenous women (Wilde et al., 2023). Restricted access to technical documents, limited consultation time for non-state stakeholders, and resource imbalances between developed and developing nation delegations further entrench exclusion.

The ISA operates within a knowledge hierarchy that privileges positivistic "scientific evidence" while dismissing traditional knowledge as "anecdotal" or "unverifiable" (Miller et al., 2018). Analysis of ISA documents reveals how certain knowledge claims are validated through references to peer-reviewed scientific literature, environmental impact assessments, and technical studies, while alternative knowledge systems are absent or acknowledged only superficially through vague references to "considering traditional knowledge."

Indigenous women's testimonies about the "ocean as ancestor" or "spiritual obligation to protect" are received with skepticism or polite acknowledgment followed by dismissal (Lixinski & Morgera, 2024). The meeting records show a pattern: Indigenous representatives share narratives about their relationships with marine environments, genealogical connections to specific ocean territories, and spiritual responsibilities as ocean guardians. In the reports consulted, these interventions are acknowledged but are not followed by changes in the technical discussions about mining regulations, environmental thresholds, or benefit-sharing mechanisms.

The documentary record shows the same asymmetry. When the Council took up the draft regulations in July 2025, observers' reminders of the role of rights-holders, Indigenous Peoples and traditional knowledge were recorded in a single sentence in the discussion of regulation 93 bis, whereas the same ENB report devotes extensive detail to royalty, fee and payment provisions (ENB, 2025b).

Meanwhile, economic arguments from mining industry representatives, projections about mineral demand, estimates of resource value, and claims about green technology benefits are accepted without equivalent scrutiny. Industry presentations feature sophisticated graphics, quantitative models, and cost-benefit analyses that align with bureaucratic preferences for "objective" data. The asymmetry is striking: spiritual knowledge requires "verification" while economic projections are treated as factual despite their speculative nature and vested interests behind them.

Session formats do not accommodate oral and narrative-based communication styles common in Pacific Indigenous cultures (Hviding, 1996). Formal interventions require speakers to address the chair, adhere to time limits, and present arguments in specific formats. This procedural rigidity marginalizes Indigenous women whose communication practices emphasize storytelling, relationship-building, and holistic context-setting before addressing specific issues. When constrained to two-minute interventions, the richness and depth of Indigenous ecological knowledge cannot be adequately conveyed.

Critically, no mechanisms exist within the ISA to validate local ecological knowledge on its own terms. Scientific advisory committees reviewing environmental considerations do not include Indigenous knowledge holders, and no protocols exist for incorporating traditional ecological observations into environmental baseline studies or impact assessments (Van Dover et al., 2017). This systematic erasure constitutes epistemic violence, the delegitimization of spiritual and relational knowledge as "unscientific" while simultaneously claiming to value "diverse perspectives" (McGregor, 2004).

These barriers do not fall evenly. A woman who sits on a state delegation, one who represents an organization that already holds observer status, and one who speaks for an unaccredited community group face different thresholds, as do speakers of English and of Pacific languages, and those with and without reliable connectivity for remote participation. The records cited above document the first two positions better than the third. The experience of unaccredited community women is not documented in the corpus; it is inferred from the observer rules and remains a question for further research (Section 5.3).

4.2. Politics of Translation: Loss of Meaning and Navigation Tactics within the Bureaucratic System

When Indigenous concepts do enter bureaucratic spaces, they undergo distortion through translation processes that strip away ontological dimensions and transformative potential. The concept of "ocean as ancestor" which is fundamental to Pacific Indigenous cosmologies is reduced to "cultural heritage" in ISA language (Lixinski & Morgera, 2024). This translation transforms a living relation into a heritage object, something to be preserved or respected but not a subject with agency and rights. The ontological dimension, understanding the ocean as kin, as ancestor, as living entity with whom humans maintain reciprocal obligations disappears in translation.

A negotiation in progress shows this translation at work. In the working group on underwater cultural heritage, members debated whether the draft regulations should speak of "objects and sites of an archaeological or historical nature," of "underwater cultural heritage," or of "cultural rights or interests." The co-facilitators kept the last phrase partly as a hook for intangible heritage, and a draft definition of intangible underwater cultural heritage lists traditional navigation knowledge, oral histories, and spiritual and ritual practices linked to water bodies (ISA, 2025b). The ocean's spiritual and ritual significance thus enters the text mainly through the vocabulary of heritage and interests, terms whose meaning some members questioned (ISA, 2025b).

Similarly, Indigenous concepts of "guardianship" or "stewardship" are co-opted by industry discourse. Mining companies strategically employ sustainability language, using terms like "responsible mining," "environmental stewardship," and "sustainable development" borrowed selectively from Indigenous discourse (Lily et al., 2023). However, these appropriations lack substantive commitment to Indigenous values. "Stewardship" in industrial term means managing resources efficiently for human benefit, not maintaining reciprocal relationships with non-human kin. The semantic hijacking allows industry actors to claim alignment with Indigenous values while pursuing fundamentally extractive agendas.

Indigenous women lose control over their own narratives through these translation processes. Their concerns about spiritual desecration, disruption of ancestral relationships, and violation of sacred obligations become translated into concerns about "cultural sites" or "traditional practices" that can potentially be mitigated through compensation or minor regulatory adjustments (Vierros et al., 2020). The transformative power of their arguments and the fundamental challenge to extractive paradigms are neutralized.

Third-party mediation introduces additional distortion. International NGOs often serve as "translators" between Indigenous women and ISA bureaucracy, well-intentioned but potentially

filtering and simplifying Indigenous perspectives to fit familiar advocacy frames (Bosco, 2015). NGO representatives may emphasize aspects of Indigenous concerns that resonate with environmental or human rights discourse while downplaying spiritual or ontological dimensions that seem "too radical" for bureaucratic forums.

Despite systemic barriers, Indigenous women demonstrate remarkable agency and strategic sophistication in navigating ISA bureaucracy. Coalition-building with sympathetic nation delegations proves crucial. Pacific Island states including Fiji, Palau, and Vanuatu have emerged as important allies, and the record below shows state diplomats carrying Indigenous cultural-heritage concerns into the negotiating process. The corpus does not document how advocacy groups prepare or coordinate such interventions.

Coalition-building is visible in the record. The informal working group on underwater cultural heritage was co-facilitated by a legal adviser of the Federated States of Micronesia together with Greece and Brazil (ENB, 2025b). Its Rev. 5 text, submitted on 1 December 2025 after two virtual meetings, proposes an advisory group of experts that would include experts on the knowledge and rights of Indigenous Peoples, with a bracketed minimum of seven experts nominated from the seven United Nations-recognized sociocultural Indigenous regions (ISA, 2025b). In March 2025, the Te Ipukarea Society of the Cook Islands spoke for the Maui Nui Makai Network as well as for itself (ENB, 2025a).

Statements to ISA organs show how Indigenous organizations strategically employ international legal language when beneficial: in March 2025, observers argued that deciding whether an application benefits humankind as a whole cannot be done without consulting Indigenous Peoples (ENB, 2025a). References to the UN Declaration on the Rights of Indigenous Peoples (UNDRIP), particularly provisions on Free, Prior, and Informed Consent (FPIC), provide leverage in bureaucratic debates (Vierros et al., 2020). Indigenous representatives cite Convention on Biological Diversity commitments to traditional knowledge and international human rights law principles. This strategic bilingualism of shifting between Indigenous frameworks and international legal language demonstrates sophisticated understanding of bureaucratic politics.

Indigenous women also mobilize outside formal ISA forums through public statements and international solidarity networks. Such actions can build public pressure that indirectly shapes the context of ISA deliberations, although the records consulted do not allow their influence on the negotiating text to be traced.

Translation, too, is unevenly distributed. Two channels are visible in the 2025 record: state diplomats, such as the Micronesian legal adviser who co-facilitated the cultural-heritage working group (ENB, 2025b), and observer organizations based in Hawai'i, the Cook Islands and French Polynesia (ENB, 2025a). Pacific Indigenous women's networks as such are not named in the ENB and ISA records cited here, so the corpus shows how other Indigenous and Pacific observers are received by the institution, not how Pacific Indigenous women's networks are.

4.3. Creation of Alternative Spaces, Strategic Framing, and Implications for the Mining Code

Indigenous women create parallel forums organized by civil society that operate according to different norms and values (Whyte, 2014). Pacific regional gatherings bring together Indigenous women from different islands to share knowledge, develop common positions, and provide mutual support. These spaces operate through Indigenous protocols beginning with acknowledgment of ancestors, incorporating prayer or ceremony, allowing time for relationship-building before addressing political strategy.

The corpus documents one instance of such ritual practice reaching the ISA itself: the Maui Nui Makai Network's chant at the Council in March 2025 (ENB, 2025a). It documents no parallel forum organized outside the ISA. The broader descriptions of Indigenous women's parallel forums, art and online storytelling in this section are interpretive propositions that the records consulted neither confirm nor refute.

Art, music, and ritual serve as forms of advocacy that communicate in ways bureaucratic language cannot capture. Indigenous women create visual art depicting spiritual connections to the ocean, perform traditional songs at side events, and conduct ceremonies asserting sacred relationships with marine environments. These cultural expressions resist translation, maintaining Indigenous epistemologies intact while offering non-Indigenous audiences alternative ways of understanding ocean relationships.

Visual documentation and digital storytelling reach global audiences through documentary films, photographic exhibitions, and online storytelling projects. These media present Indigenous women's perspectives in their own words, using their own frameworks, without bureaucratic filtering. Alternative media creates parallel narratives that challenge dominant framings of deep-sea mining as technical-economic question rather than ethical-spiritual crisis.

These alternative spaces serve multiple functions. They preserve Indigenous epistemologies that might otherwise be lost in translation. They provide solidarity networks offering emotional support and strategic coordination. They demonstrate that Indigenous women are not passive victims but active political agents creating their own forums when excluded from formal ones (Cohen et al., 2016).

Indigenous women strategically connect deep-sea mining to the global climate crisis, emphasizing contradictions in destroying biodiversity to combat climate change (Pascual et al., 2023). This framing resonates with broader environmental movements and exposes tensions in "green" extractivism.

They employ human rights and Indigenous peoples' rights arguments, positioning deep-sea mining as potential violation of rights to culture, to maintain spiritual practices, and to self-determination over ancestral territories, even when those territories are classified as "international waters" under UNCLOS.

The precautionary principle becomes another strategic tool. Given scientific uncertainty about deep-sea ecosystem functioning, biodiversity, and mining impacts, Indigenous women argue for

caution and a moratorium until adequate knowledge exists (Singh & Jaeckel, 2024). This argument gains legitimacy from scientists expressing concern about knowledge gaps, creating alliances between Indigenous advocates and sympathetic researchers.

Transnational solidarity with global environmental and feminist movements amplifies Indigenous women's voices. Connections with organizations focused on climate justice, ocean conservation, and Indigenous rights provide resources, visibility, and political leverage. Indigenous women learn from experiences in other international forums, lessons from climate negotiations, biodiversity conventions, and human rights bodies inform strategies at the ISA (Lau et al., 2021).

Analysis of draft Mining Code provisions reveals a gap between rhetorical commitment to inclusion and actual implementation mechanisms. References to "considering traditional knowledge" and "gender equality" appear in preamble language but lack specific protocols for how traditional knowledge will be validated, who will assess it, and how it will influence decision-making (Willaert, 2022). These clauses function as decorative symbolic gestures toward inclusion that mask continued exclusion.

The negotiating text shows the same pattern in specific provisions. On draft regulation 93 bis (stakeholder consultation), delegations agreed in July 2025 that the consultation period may not be less than 90 days, and observers stressed the role of rights-holders, Indigenous Peoples and traditional knowledge (ENB, 2025b). On draft regulation 94 (adoption of standards), delegates debated whether the Legal and Technical Commission must take into account the views of stakeholders, Indigenous Peoples, local communities and competent experts; one delegate noted that Indigenous Peoples and local communities are themselves stakeholders, and another asked that the definition of stakeholders say so (ENB, 2025b). Under draft regulation 95 (issuance of guidelines), delegations asked who qualifies as a stakeholder and how stakeholder input would be incorporated (ENB, 2025b). These exchanges concern less whether Indigenous Peoples may comment than whether the text gives their knowledge a defined procedural role.

For example, draft provisions mention "environmental and social considerations" but environmental protection standards remain vague while technical specifications for mining operations are detailed. Indigenous women's concerns about spiritual desecration or cultural impacts have no clear pathway for influencing mining permit decisions. The rhetorical inclusion allows the ISA to claim stakeholder engagement while maintaining business-as-usual approaches.

Despite FPIC being an international standard for Indigenous peoples under UNDRIP, it has not been adequately adopted in Mining Code provisions (Vierros et al., 2020). Indigenous women lack veto power over projects threatening their marine territories. The legal classification of deep seabed as "common heritage of mankind" under UNCLOS creates ambiguity about whether Indigenous peoples' rights apply, with some delegations arguing that these areas fall outside territorial jurisdiction and thus outside Indigenous rights frameworks.

The Mining Code's structure reveals priorities through what receives detailed attention versus what remains vague. Revenue-sharing mechanisms, contractor obligations, fee structures, and exploitation timelines receive extensive specification. Environmental protection standards, by

contrast, remain general and unenforceable (Finkelstein & Chakraborty, 2024). Social considerations including Indigenous peoples' rights receive even less substantive treatment. This prioritization reflects epistemic dominance of economic-legal frameworks over ecological-spiritual concerns.

The clearest test is the working group's Rev. 5 text, which inserts Indigenous-related provisions into the Council President's revised consolidated text (ISBA/30/C/CRP.1). Draft regulation 4 bis would require exploitation to respect cultural rights or interests, including the rights of Indigenous Peoples and their traditional knowledge, and would allow an advisory group of experts on cultural matters. Draft regulation 35 would bar unnecessary disturbance of venerated sites, and the definition of "stakeholder" would name Indigenous Peoples and local communities (ISA, 2025b).

Almost all of these provisions remain in brackets. The co-facilitators recommended transmitting the text with the explanation that brackets remain on major unresolved issues and that nothing is agreed until everything is agreed (ISA, 2025b). At the end of 2025, the exploitation regulations as a whole remained under negotiation.

4.4. Institutional Responses: Gender and Indigenous Participation at the ISA

Whether exclusion remains unaddressed has to be tested against what the ISA has itself done. The record since 2024 shows measures on two separate tracks, one concerned with gender and one with Indigenous participation, which rarely meet.

On gender, the Authority has built a capacity-development and staffing architecture. The Secretary-General issued terms of reference on 28 November 2024 for an internal Gender Equality Task Team, charged with a gender equality strategy and with mainstreaming gender in programmes and operations (ISA, 2024b). The See Her Exceed (S.H.E.) Global Mentorship Programme, launched in 2023, completed its pilot cohort with a webinar on 3 December 2025 that launched a study of barriers to women's participation in at-sea missions and a draft Gender Equity Charter, on which the Secretary-General promised a stakeholder consultation (ISA, 2025a). The Council was also told in July 2025 that selection for contractors' training programmes stood at 60 percent men and 40 percent women, and delegations supported gender balance in the proposed compliance committee and in the inspectors' code of conduct (ENB, 2025b).

These measures address women as scientists, legal experts and seafarers, mainly from developing States. The programme release reviewed for this study does not refer to Indigenous women or Indigenous knowledge holders as a target group (ISA, 2025a).

On Indigenous participation, the response has been largely informal and textual. In July 2025, the Secretary-General committed to greater transparency and inclusivity (ENB, 2025b), and Indigenous perspectives entered the negotiation as proposals on underwater cultural heritage (Section 4.3). One delegate proposed including Indigenous representatives in advisory processes under draft regulation 35, while proposals for a new committee or advisory board drew objections about the burden they would impose (ENB, 2025b).

None of the Council and Assembly decisions summarized in ENB's report on the second part of the 30th session establishes a mechanism for Indigenous participation (ENB, 2025b), and the Authority's stakeholder-engagement page refers to "all stakeholders" without naming Indigenous Peoples or women (ISA, n.d.). The organizations in the corpus addressed the Council as observers, under the rules discussed in Section 4.1.

The record qualifies the argument without overturning it. Gender is now institutionalized as a capacity-building and staffing concern, and Indigenous cultural claims have entered the negotiating text as proposals. But the two tracks are administratively separate, rest on voluntary or still-bracketed instruments, and offer no point of entry that addresses Indigenous women as both rights-holders and knowledge holders. Whether this reflects design or inertia cannot be established from the documents. What they show is that the participation of Indigenous women as such is not yet the object of any ISA measure in the records consulted.

These measures also reach different groups. S.H.E. targets women professionals from developing States, whereas the Indigenous voices recorded in 2025 come from Pacific and Hawaiian organizations, and none of the organizations named in the sources cited here identifies itself as an Indigenous women's organization. The corpus therefore does not allow conclusions about the institutional reception of Indigenous women's networks as such.

5. Discussion and Policy Implications

5.1. Theoretical Contributions

This study makes two theoretical contributions. It extends Feminist Political Ecology and Bureaucratic Geopolitics to the deep sea (Section 5.1.1), and it proposes Deep-Sea Feminist Political Ecology (DS-FPE) as a framework with defining propositions and analytical criteria (Section 5.1.2).

5.1.1. Extending Feminist Political Ecology and Bureaucratic Geopolitics to the Deep Sea

This research demonstrates FPE's relevance for understanding deep-sea management politics, an area typically dominated by international law and marine science perspectives. By applying FPE frameworks to deep-sea governance, this study reveals how gendered power dynamics operate in spaces distant from terrestrial and coastal contexts where FPE scholarship has primarily focused (Rocheleau et al., 1996; Elmhirst, 2011). The deep sea represents a frontier of resource extraction where environmental governance frameworks are still emerging, making visible the gendered assumptions embedded in "neutral" bureaucratic procedures. Section 5.1.2 develops this extension into a framework. The deep sea's classification as "common heritage of mankind" under UNCLOS obscures Indigenous peoples' historical relationships with these waters, enabling governance frameworks that exclude those most connected to these environments.

By enriching Bureaucratic Geopolitics with feminist perspectives, this study shows how masculine norms are embedded in seemingly neutral bureaucratic procedures (Kuus, 2015). The ISA emerges as a site where gender, epistemology, and geopolitics intersect in consequential ways. Bureaucratic

cultures, which privilege technical expertise, formal communication, and legal reasoning embody masculine norms that disadvantage women, particularly Indigenous women whose knowledge systems and communication practices differ from bureaucratic expectations. This research provides empirical evidence of how non-Western knowledge is marginalized through specific silencing mechanisms in international bureaucracy. The concept of epistemic violence, developed by postcolonial scholars, finds concrete instantiation in ISA practices that dismiss spiritual knowledge as "anecdotal" while privileging particular forms of scientific and economic expertise (McGregor, 2004). This analysis contributes to broader debates about knowledge justice in global governance, revealing how bureaucratic mechanisms operate as technologies of power that validate certain epistemologies while erasing others.

5.1.2. Deep-Sea Feminist Political Ecology: Defining Propositions and Analytical Criteria

Deep-Sea Feminist Political Ecology (DS-FPE) is proposed as a framework for analyzing how gender, Indigeneity and knowledge hierarchies shape who may know, speak for and decide about marine spaces that are legally remote, physically inaccessible to most communities and governed through international bureaucracy. It keeps the core commitments of Feminist Political Ecology: that environmental governance is gendered, that knowledge is a site of power, and that women are political agents rather than passive victims (Rocheleau et al., 1996; Elmhirst, 2011; Nightingale, 2006). It departs from conventional FPE in three conditions of its setting. The resource is not reached through everyday labor, the arena of decision is an international organization rather than a household or community, and the evidence that counts is produced by technoscience at sea rather than by lived presence.

DS-FPE also differs from critical ocean geographies that theorize depth and volume (Steinberg & Peters, 2015) or the spatial and temporal politics of deep-sea mining (Childs, 2020), which have given less attention to gender and Indigenous knowledge. Table 2 sets out five propositions, each paired with an analytical criterion that can be applied to other bodies governing areas beyond national jurisdiction.

Table 2. Defining propositions and analytical criteria of Deep-Sea Feminist Political Ecology

Proposition	Claim	Contrast with conventional FPE	Analytical criterion
P1. Jurisdictional distance	In areas beyond national jurisdiction, claims must be carried by international legal categories ("common heritage of humankind," "cultural heritage," "stakeholder"); ancestral and relational ties are legible only if a category exists for them.	FPE usually traces access through local property and customary regimes in places where women live and work.	Which legal categories can carry Indigenous women's claims, and which are unavailable or contested (e.g., "cultural rights" versus collective rights)?

Proposition	Claim	Contrast with conventional FPE	Analytical criterion
P2. Procedural gatekeeping	Participation is filtered by accreditation, speaking time, document formats and access to informal negotiating groups, and these burdens fall unevenly by gender, Indigeneity and resources.	FPE locates gendered power mainly in labor, property and household or community relations.	Who can enter, speak and attend informal groups; does the record identify speakers by gender and Indigeneity?
P3. Technoscientific gatekeeping of evidence	Knowledge of the deep sea is produced mainly through ship-based and remote technoscience, so evidentiary authority concentrates in actors with ocean-going capacity and relational knowledge is positioned as non-evidence.	FPE contrasts expert and experiential knowledge where communities are physically present; here no community lives at the site, and Indigenous knowledge is genealogical and relational rather than observational.	What counts as best available evidence in the regulations; does any body validate Indigenous knowledge (e.g., an advisory group or roster)?
P4. Translational conditionality	Admission to the negotiation depends on translating relational concepts into legal-technical terms, and translation alters their ontology (ocean as ancestor becomes heritage).	FPE documents the co-optation of women's knowledge in projects; DS-FPE locates it in terms of art negotiated in treaty text.	Track key terms across statements and drafts; compare the original formulation with bracketed or adopted language.
P5. Counter-spaces as political infrastructure	Where access is limited, women build counter-spaces (ceremony, alliances with states, digital publics) that work as infrastructure only when linked back to decision points.	FPE emphasizes everyday and local resistance.	Identify counter-spaces and trace whether and how their claims reach negotiating text, facilitators or state delegations.

The ISA case illustrates each proposition. The bracketed choice among "objects and sites," "underwater cultural heritage" and "cultural rights or interests" in the working group's text shows how legal categories decide whose claims are cognizable (P1) (ISA, 2025b). Rule 82, the 2023 consultation that omitted Indigenous leaders, and the debate over competent observers illustrate procedural gatekeeping (P2), although the gendered distribution of these burdens is not documented in the institutional records and remains a hypothesis for further research (ISA, 2024a, 2025b; DSCC, 2023). The absence of any body that validates Indigenous knowledge, and the proposed advisory group of cultural experts, illustrate P3. The movement from an ancestral ocean to "venerated sites" and heritage illustrates P4. The Maui Nui Makai Network's chant and the alliance with state facilitators illustrate P5 (ENB, 2025a, 2025b).

The propositions are analytic hypotheses derived from one institution, not general laws. Each should be tested separately for differently positioned groups of Indigenous women (Section 4), and each can be falsified. If observer rules were relaxed without any change in how Indigenous claims enter negotiating texts, P2 would be weakened. If Indigenous experts were seated on a

validating body but their knowledge still had no effect on standards, P3 would be refined rather than confirmed. Comparison with other regimes for areas beyond national jurisdiction, such as the Agreement on Biodiversity Beyond National Jurisdiction (BBNJ Agreement), would show how far the framework travels.

5.2. Policy Recommendations for ISA Reform: Structural and Institutional Reforms, Epistemological Recognition, and Procedural Rights and Precautionary Measures

The recommendations below build on instruments the ISA has already shown it can create (Section 4.4). The Gender Equality Task Team and the draft S.H.E. Gender Equity Charter show that gender commitments can be developed and consulted on; the working group on underwater cultural heritage shows an existing channel through which Indigenous expertise could be formalized; and rule 82 of the Assembly's rules of procedure shows where a procedural change would matter most. Four steps follow: extending the Charter's consultation to Indigenous women who take part as rights-holders and knowledge holders rather than as scientists; adopting the advisory group of experts on cultural matters proposed in draft regulation 4 bis, with members nominated by Indigenous institutions; recognizing Indigenous peoples' institutions as a distinct observer category; and recording, with consent, the gender and Indigenous identity of observers who address ISA organs.

Achieving substantive inclusion of Indigenous women requires fundamental institutional reforms. Delegation composition must diversify beyond legal-technical experts to include social scientists, ecologists, and Indigenous representatives with recognized expertise in their knowledge domains. This diversification should occur at all levels from national delegations, ISA Secretariat staff, Legal and Technical Commission, to advisory bodies. Participatory mechanisms require redesign to enable genuine consultation rather than symbolic gestures. Adequate consultation time means providing Indigenous communities with months, not weeks, to review complex technical documents, deliberate internally, and formulate responses. It means scheduling consultations with attention to communities' other commitments rather than expecting Indigenous representatives to constantly travel to Kingston (Alonso-Población & Siar, 2018). Gender and cultural sensitivity training for ISA staff and delegation members should address implicit biases, cultural differences in communication styles, and the history of colonial exclusion in international law. Such training must go beyond awareness-raising to transform institutional cultures and practices.

Specific protocols for validating and incorporating traditional ecological knowledge must be developed through collaborative processes involving Indigenous knowledge holders themselves. These protocols should recognize that traditional knowledge operates according to different validation standards than Western science, emphasizing long-term observation, spiritual connection, and intergenerational transmission rather than experimental replication and peer review. Inclusive "expert panels" should grant Indigenous representatives equal standing with scientists and lawyers, recognizing their expertise in ocean ecosystems, sustainability practices, and environmental stewardship. Such panels would integrate different knowledge systems rather than subjecting traditional knowledge to evaluation by Western scientific standards (Pascual et al., 2023). Session formats accommodating oral and narrative-based communication would transform how knowledge is shared in ISA forums. This might include dedicated sessions for storytelling,

allowing longer speaking times for Indigenous representatives, and creating spaces for dialogue rather than formal statements (Hviding, 1996).

Implementing Free, Prior, and Informed Consent in all decision-making stages represents a necessary shift toward respecting Indigenous peoples' rights. FPIC mechanisms should grant Indigenous communities genuine veto power over projects affecting their marine territories, even in areas classified as international waters. This requires rethinking how "common heritage of mankind" relates to Indigenous peoples' rights, concepts that international law has not adequately reconciled (Vierros et al., 2020). Granting special consultative status to Indigenous women's organizations would recognize their specific expertise and ensure their perspectives are systematically incorporated. Such status should include guaranteed speaking time in main sessions, access to technical meetings, and participation in drafting processes.

Dedicated funding to support participation of delegations from developing countries and Indigenous communities addresses resource barriers. An ISA-administered fund could cover travel, accommodation, and translation costs, enabling participation regardless of financial resources. This funding should be non-conditional, not requiring Indigenous organizations to conform to specific agendas or priorities (Wilde et al., 2023). Supporting calls for a deep-sea mining moratorium until adequate scientific understanding is achieved aligns with the precautionary principle. Multiple scientific organizations and environmental groups have called for moratoriums given the irreversible nature of deep-sea ecosystem damage and substantial knowledge gaps about biodiversity, ecosystem functioning, and mining impacts (Singh & Jaeckel, 2024; Van Dover et al., 2017).

If mining proceeds despite scientific and Indigenous opposition, strict ecological and social safeguards with Indigenous oversight become essential. Environmental standards must be stringent, independently monitored, and enforceable with meaningful penalties for violations. Social safeguards must protect Indigenous peoples' cultural practices, spiritual connections, and livelihoods from mining impacts. Prioritizing environmental protection and Indigenous rights over economic exploitation requires reordering the Mining Code's values. Rather than treating environmental protection as constraint on extraction, the Mining Code should establish ecological integrity as primary value with extraction permitted only when strict conditions are met. Indigenous rights should be recognized as fundamental, not discretionary considerations (Finkelstein & Chakraborty, 2024).

5.3. Methodological Limitations

This research faces several limitations requiring acknowledgment. First, restricted access to internal ISA decision-making processes limits understanding of informal dynamics shaping outcomes. While public documents and meeting reports provide substantial data, private deliberations among delegates and within the ISA Secretariat remain opaque. Future research with greater institutional access could provide deeper insights into decision-making processes. Second, representing diverse Indigenous women's voices without essentializing them as a homogeneous category presents ongoing challenges. Pacific Indigenous women are diverse, with varying perspectives shaped by specific cultural backgrounds, island contexts, and political positions. This

research attempts to document systemic patterns while respecting heterogeneity, but the tension between generalization and specificity remains. Collaborative research methodologies involving Indigenous women as co-researchers could address this limitation more effectively. Third, the complexity of accurately portraying multiple perspectives while maintaining analytical coherence creates methodological tensions. Balancing Indigenous women's voices, bureaucratic perspectives, scientific viewpoints, and industry positions requires navigating among competing frameworks and truth claims. The researcher's interpretation inevitably shapes how these perspectives are presented and analyzed.

Four further limitations follow from the evidence used. First, the study rests on a purposive corpus of public records and contains no interviews, observation of proceedings or social media data, so informal exchanges, closed meetings and the experience of women who do not appear in the record lie outside the evidence (Table 1). Second, institutional sources attribute observer interventions to organizations rather than to speakers and do not record gender or Indigenous identity, which limits disaggregation (Section 4). Third, the organizations named were not consulted before submission, and their statements are read through institutional records that may summarize them selectively (Section 3.4). Fourth, the analysis reflects the public record only up to January 2026; negotiations on the Mining Code continue, so the findings on institutional responses are time-bound.

6. Conclusion

This research argues that the International Seabed Authority (ISA) operates as a bureaucratic system that structurally silences Pacific Indigenous women's ecological knowledge. Through the dominance of international legal frameworks, exclusionary procedures, language barriers, epistemic violence against spiritual and relational knowledge, and distorted translation practices, the ISA privileges legal-technical expertise while marginalizing Indigenous ecological epistemologies. Although Indigenous women face systemic exclusion, they exercise agency through creative resistance: building coalitions, strategically engaging international legal language, mobilizing outside formal forums, and reframing deep-sea mining as an issue of climate justice, human rights, and precaution to build transnational solidarity.

Analysis of the Mining Code reveals a gap between rhetorical inclusion and meaningful participation, including the absence of Free, Prior, and Informed Consent and the prioritization of economic interests over ecological and social concerns. These findings show that without structural reform, Indigenous participation will remain symbolic. The ISA's negotiation process is not merely technical but an epistemological and geopolitical struggle rooted in colonial, patriarchal, and Eurocentric foundations of international law. The UNCLOS framing of the ocean as the "common heritage of mankind" reinforces extractivist logics that erase Indigenous spiritual and historical relationships with the deep sea. The Authority's recent gender and cultural-heritage initiatives (Section 4.4) show movement on both fronts, but the records examined show no measure addressed to Indigenous women as such.

The research contributes academically by extending Feminist Political Ecology to marine governance through a proposed framework of "Deep-Sea Feminist Political Ecology." The framework is specified in five propositions with analytical criteria (Section 5.1.2). Practically, it supports ISA reform advocacy and strengthens arguments for deep-sea mining moratoriums by exposing the illegitimacy of exclusionary decision-making. Politically, it affirms Indigenous

women's knowledge and leadership as essential to global environmental governance, contributing to broader struggles for decolonization, knowledge justice, and Indigenous rights.

6.1. Future Research Directions

Future research should compare the ISA with other international environmental institutions (e.g., UNFCCC, CBD, CITES) to assess whether constraints on Indigenous participation reflect broader patterns in global environmental governance. Longitudinal studies examining the consequences of Indigenous women's exclusion particularly in relation to deep-sea mining outcomes would help evaluate the environmental and social costs of dismissing Indigenous knowledge and strengthen arguments for inclusive decision-making.

Further research should explore Indigenous governance models, such as Oceania traditions emphasizing collective stewardship and reciprocal relations, as alternatives to extractive paradigms in international law. Examining cases where Indigenous women have achieved substantive influence in international forums can identify enabling institutional and strategic conditions, including leadership, procedural flexibility, resources, coalition-building, and media engagement.

Finally, analysis of digital technologies' role in Indigenous women's advocacy can clarify how digital tools both expand participation and reproduce barriers through inequitable access, censorship, and information saturation. Together, these research directions highlight how struggles over deep-sea mining governance raise fundamental questions about extractivism, epistemic authority, and whose knowledge shapes ocean futures, underscoring the necessity of recognizing Indigenous women as essential experts in just and sustainable ocean governance.

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