International Journal of Innovation and Business Strategy

Full paper

DOI: https://doi.org/10.11113/ijibs.v21.201

Beyond Engineering Resilience: A Systematic Literature Review Toward An Integrative Perspective on Marine Fisheries Supply Chain Resilience

Galuh Sudarawerti[a*], Togar M. Simatupang[b], Yuanita Handayati[c]

[a]School of Economics and Business, Telkom University, Bandung, Indonesia
[b,c]School of Business and Management, Bandung Institute of Technology, Bandung, Indonesia

*Corresponding author: galuh_sudarawerti@sbm-itb.ac.id

Article history: Received: 24 March 2026 Received in revised form: 11 May 2026 Accepted: 16 May 2026 Published online: 26 Jun 2026

Article type: Review article

Abstract

The marine fisheries sector plays a critical role in global food security and the economy, especially for coastal communities. However, this sector faces numerous challenges, including overfishing, habitat destruction, and disruptions caused by climate change and natural disasters, showing the multi-dimensional disruptions faced by the sector. Research in the area of supply chain resilience has discussed various perspectives, particularly engineering, ecological, and Complex Adaptive System (CAS) resilience perspectives, which have distinct assumptions and strategies. However, the use of these perspectives is fragmented, limiting the comprehensive understanding of resilience under multiple disruptions in the complex supply chain context. This study aims to explore suitable perspectives for developing resilience in the marine fisheries supply chain. By conducting a systematic literature review following PRISMA protocol, to examine the conceptualization of supply chain resilience across different perspectives, and how resilience is being interpreted and operationalized. Through this review, this study highlights various interpretations and identifies a range of strategies. Further, this study discusses the relations between these strategies related to the different perspectives in managing disruptions and enhancing resilience in marine fisheries supply chains. This study offers a structured synthesis and an integrative perspective, providing a more comprehensive understanding of resilience. Rather than proposing a fully operational framework, this study lays the foundation for future research and practical strategies in facing dynamic supply chain environments.

Keywords: Supply chain resilience, Marine fisheries resilience, Complex adaptive systems, Adaptive management strategies

■1.0 INTRODUCTION

Fisheries constitute a major global sector, playing important roles in supporting food security, economic development, and human capital development (Kelling *et al.*, 2026). Fisheries support global protein consumption and nutritional improvements while supporting local and global economy development, as well as coastal livelihoods (Boyd, Mcnevin and Davis, 2022; Bakhsh *et al.*, 2024). However, despite its importance, this sector is facing various challenges, encompassing ecological, social, and economic aspects altogether. These collective disruptions exhibit the complex nature of the fisheries supply chain ecosystem that should be acknowledged in its resilience conceptualization.

Fisheries around the world face a myriad of problems, both constant and disruptive, that threaten their sustainability and the well-being of dependent communities. Constant problems include overfishing, illegal, unreported, and unregulated (IUU) fishing, and habitat destruction due to destructive fishing practices such as bottom trawling (Heck, Beck and Reguero, 2021; Singh *et al.*, 2024). These issues systematically degrade marine ecosystems, reducing biodiversity and compromising the health of fish populations. These interrelated phenomena reflect structural vulnerabilities in the marine fisheries ecosystem that affect the supply chain performance. However, established work in the area of supply chain resilience has mostly focused on operational recovery rather than structural adaptation, showing the limitations in addressing system-level threats.

Disruptions in fisheries tend to have more immediate and often more severe impacts. Natural disasters, such as hurricanes and tsunamis, can devastate fishing infrastructure and habitats, leading to sudden and dramatic losses in fish populations and the means to harvest them (Orengo Serra and Sanchez-Jauregui, 2021). Climate change is another major disruptor, altering sea temperatures, ocean currents, and the distribution of fish species (Talloni-Álvarez *et al.*, 2019; Mendenhall *et al.*, 2020). Climate disruption is causing a gradual, difficult-to-predict shift in the ecosystem. Hence, rendering traditional fishing grounds unproductive, forcing fishers to travel further and invest more resources to maintain their catches. Additionally, economic disruptions, such as market crashes or trade restrictions, can severely impact the profitability of fisheries, leading to financial instability for fishers and associated businesses (Fernández-Miguel et al., 2022; Jayasinghe et al., 2022).

The societal impacts of these disruptions are profound. Communities that rely on fishing for their livelihoods face increased economic uncertainty and hardship. The loss of income from declining fish catches can lead to poverty, unemployment, and food insecurity, particularly in regions where alternative employment opportunities are limited (Jayasinghe et al., 2022; Nagurney, 2021). These consequences affect the capacity of fishing communities in absorbing and adapting to disruptions, thus affecting the overall performance of the supply chain.

Ecosystem impacts are equally concerning. Disruptions that reduce fish populations can have a cascading effect on the entire marine food web. Predatory species that rely on certain fish as a primary food source may decline, while the species that are preyed upon by these fish may increase unchecked, leading to imbalances (Gilman et al., 2023; Scheffer et al., 2001, 2005). The loss of key species can affect the health of coral reefs, mangroves, and other critical habitats, further degrading the ecosystem's resilience. In turn, these ecological changes can exacerbate the challenges faced by human communities, creating a vicious cycle of environmental and social decline. Addressing these disruptions requires comprehensive and adaptive conceptualization of supply chain resilience.

Given the complexity and interdependence of the marine fisheries supply chain, maintaining the supply chain performance has become increasingly important. The interconnected nature of the supply chain system potentially propagates the impact of disruptions in one point of the network, which potentially affects the stability of the whole system. Therefore, it is important to think about resilience more than the extent of recovery from disruption, but rather the ability of the supply chain system to continuously adapt in a changing environment while maintaining its core functions.

Existing studies established different approaches in framing supply chain resilience, particularly engineering, ecological, and CAS resilience perspectives, with distinct assumptions and strategies. However, these perspectives are often applied in a fragmented manner. Engineering resilience is currently a dominant perspective in the supply chain resilience literature. Furthermore, ecological and CAS perspectives are other perspectives that emphasize adaptation, transformation, and acknowledge the system-level interdependencies. These perspectives offer a different approach that is currently underutilized.

The dominance of the engineering perspective in supply chain research created more than a mere preference of one approach over others. Instead, it has shaped the logic of the research agenda, resulting in the exclusion of two main dimensions that are central to addressing resilience in complex systems. First, it overlooks the nonlinear interactions among supply chain agent that creates emergent behaviours. Optimization alone is not sufficient to predict and model the emergent behaviours. Second, it neglects the learning and evolutionary processes that allow the system to create a new equilibrium state that is different from the pre-disruption state. In the context of marine fisheries supply chains, complexity emerged from the interaction between ecological dynamics, community livelihoods, and market forces through interdependent non-linear interactions. Thus, excluding these aspects will create a fundamental blind spot, resulting in a gap between resilience in theoretical conceptualization and contextual application.

Prior studies have acknowledged the theoretical limitations of engineering resilience perspective. However, how this approach can be applied under complex circumstances is currently underexplored. Therefore, there is a need to develop a structured theoretical understanding of how engineering, ecological, and CAS resilience perspectives relate to and complement each other to reconceptualize and strategize resilience in marine fisheries supply chain under constant disruptive situations.

Responding to this limitation, this study examines how resilience in the marine fisheries supply chain is conceptualized across different perspectives — engineering, ecological, and complex adaptive systems — and what each perspective implies for managing disruptions. By conducting a systematic literature review following the PRISMA protocol, this study synthesizes existing knowledge and identifies the complementary roles of each perspective. Rather than proposing a fully operational framework, this study offers a structured synthesis and integrative perspective that provides a more comprehensive foundation for understanding resilience in marine fisheries supply chains, supporting both future research and practical strategy development.

■2.0 LITERATURE REVIEW

2.1 Theory of Resilience

There are abundant research discussing resilience in supply chain. While the theory of resilience itself has different perspectives in seeing the process and outcome of an organization or system to be resilient. The first perspective is called engineering resilience. This perspective adopts the engineering principle, in which seeing resilience as the ability of an organization or a system to return to its original state after the occurrence of disruptions (Folke, 2006; Folke et al., 2004; Holling, 1973). From a resilience engineering standpoint, a system is deemed resilient if it remains safe (Hollnagel, 2006). If the system fails to function correctly due to disruptions, it is considered non-resilient. In this context, resilience is simply defined as the ability to 'bounce back' swiftly after disruptions, endure significant stresses, and maintain robustness against certain levels of stress (Martin-Breen & Anderies, 2011). This perspective emphasizes the system's or material's or individual's capacity to maintain stability near an equilibrium state by preserving efficiency, consistency, and predictability (Holling, 1996; Schulze, 1996). In this perspective, a system should be designed in a fail-safe manner to ensure its robustness when countering resilience (Holling, 2001). This perspective is the old dominant perspective, which being used in most of supply chain resilience design and research.

Considering the fundamentals of engineering resilience, the key concept is defined as resistance to disruptions and the short time required to recover from stress or disruptions (Holling, 1996; Schulze, 1996). Since the primary focus of engineering resilience is to enable a system to return to normal soon after experiencing stress or disruptions, three essential properties arise from this focus: resistance, elasticity, and stability. Resistance refers to the degree to which a material bends when subjected to stress. Elasticity is the material's ability to return to its original state once the stress is removed. Stability indicates the amount of stress or force the material can absorb without sustaining permanent damage stress (Martin-Breen & Anderies, 2011).

The exploration of resilience from an engineering perspective is closely tied to the concept of robustness, which considers a single equilibrium as the ideal state. Disruptions are viewed as unexpected events that should be avoided. Thus, this perspective is closely linked with risk management. According to Folke (2006), this stable equilibrium view dominates research in resilience, particularly in the context of supply chain resilience. Examples of research conducted from this perspective are presented in the following table.

Table 1 Research on supply chain resilience influenced by engineering resilience perspectives

No	Author	Resilience definition	Properties	
1	Aldrighetti et al. (2022)	Capability of a system to return to its original state, or to a more desirable condition after disruption occurred	Redundancy, Robustness, Flexibility	
2	Ali et al., (2022)	Essential strategic and capability to anticipate, adapt, respond, and recover from any expected and unexpected events	Predisruption phase	Situation awareness, Robustness, Visibility, Security, Knowledge Management
			During-Disruption Phase	Redundancy, Collaboration, Agility
			Post Disruption Phase	Evaluating, Recovery ability, Management of knowledge post-disruption, Development of Social Capital
3	Shi et al. (2022)	The ability of supply chain to respond and recover from disruptions, manage its risks, and get back to the original state, or better state after disruption	Integration and coordination of human and material resources	
4	Coronado et al., (2020)	How the supply chain responds to the uncontrolled event to reduce the level of vulnerability, to returns to its state of equilibrium	Optimal use of first-miles logistics, social structures, and information system	
5	Echefaj et al. (2022)	The extent of firm's readiness in facing unpredictable events and disturbance to return to its initial state, or improve the situation	15 types of capabilities were proposed	
6	Foroozesh et al., (2022)	Capability of SC to recover to its original level of performance by preventing and absorbing the disruptions	Multiple sourcing, financial suppliers, horizontal collaboration, route strategy	
7	Gholami-Zanjani et al. (2021)	The ability of supply chains to return to its normal state soon after unexpected events took effect	Multiple sourcing, capacity expansion, product substitution, back up facilities	
8	Liu et al. (2022)	Ability to mitigate disruptions effect by doing both proactive and recovery strategies	Optimal facilities selection, protective investment, product flows between facilities and customer, recovery actions	
9	Vali-Siar et al. (2022)	Supply chain network's ability to return to its original or more desirable state, after being hit by disruption	Adaptive SC network design	
10	Hosseini et al., (2019)	The ability of supply chain network to meet their customer's demand under disruptive situation by developing ability to withstand, adapt, and recover from the disruptions	Adaptive and restorative SC network	

11	Liu et al. (2023a)	Ability of a supply chain to cope with external disruptions by developing mitigation and respond strategy, so that it can reduce the probability of suffering from disruptions and respond properly	Mitigation and respond strategy

There is abundant research discussing resilience in supply chain. While the theory of resilience itself have different perspectives in seeing the process and outcome of an organization or system to be resilient. The first perspective is called engineering resilience. This perspective adopts the engineering principle, in which seeing resilience as the ability of an organization or a system to return to its original state after the occurrence of disruptions (Folke, 2006; Folke et al., 2004; Holling, 1973). From a resilience engineering standpoint, a system is deemed resilient if it remains safe (Hollnagel, 2006). If the system fails to function correctly due to disruptions, it is considered non-resilient. In this context, resilience is simply defined as the ability to 'bounce back' swiftly after disruptions, endure significant stresses, and maintain robustness against certain levels of stress (Martin-Breen & Anderies, 2011). This perspective emphasizes the system's or material's or individual's capacity to maintain stability near an equilibrium state by preserving efficiency, consistency, and predictability (Holling, 1996; Schulze, 1996). In this perspective, a system should be designed in a fail-safe manner to ensure its robustness when countering resilience (Holling, 2001). This perspective is the old dominant perspective, which being used in most of supply chain resilience design and research.

Despite the logical importance of managing disruptions as a risk factor to prevent system failures, Punzo et al. (2020) argued that modern systems are highly complex with deeply intertwined interdependencies among their elements. These systems have become more integrated and interdependent, experiencing continuous evolution, which makes it increasingly challenging to account for all these complexities during the design phase (Holling, 1992; Punzo et al., 2020). The concept of resilience then evolves. When the traditional perspective focusing on recovery after disruption, supply chain resilience has evolved to incorporate adaptation and transformation in response to disturbances from a social-ecological perspective (Nikookar et al., 2024). According to this work, considering the supply chain as a simple and symmetrical system operating in isolation is inadequate since there is interaction between the SC with its environment.

Another perspective then emerges is known as system resilience. This perspective holds that understanding resilience from a systemic perspective is essential, according to Walker & Salt (2006), system resilience entails comprehending and actively participating in a dynamic world The early idea of this perspective in resilience in inspired by the resilience emerged in nature ecosystem. Hence some authors acknowledged it as ecological resilience. Holling first introduced the concept of ecological resilience in 1973, contrasting it with the idea of stability that underpins engineering resilience (Holling, 1973). According to Holling, resilience is the capacity of a system to absorb disturbances and reorganize its resources while undergoing necessary changes to face disruptions (Holling, 1973). In his later work, Holling described resilience as the ability of an ecosystem to absorb disturbances while maintaining its function, structure, identity, and feedbacks (Holling, 2001). Examples of research conducted from this perspective are presented in the following table.

Table 2 Research on supply chain resilience influenced by system perspective

Author	Resilience definition	Properties
Dubey et al. (2023)	Increasing supply chain's capabilities to reduce the negative impact of disruptions on SC's performance through improvement in digital capabilities.	Adaptive capabilities (through digital technology implementation)
Folke et al. (2004)	The ability of a system to withstand disruptions and adapt while changing, yet still maintain its core function, structure, identity, and responses.	Adaptability and transformability
Kamalahmadi & Parasat (2016)	Ability of supply chain to reduce the probability of disruptions and its spreading by developing adaptive capability through maintaining control towards structures and functions, so that the supply chain can execute reactive plans to respond and recover quickly from disruption.	Adaptive capability, control maintenance, respond and reaction plan towards disruption
Ponomarov & Holcomb (2009)	The adaptive capability of the supply chain to prepare for unexpected events, respond to disruptions, and recover from them by maintaining continuity of operations at the desired level of connectedness and control over structure and function.	Adaptive capability

Navigating resilience in a complex adaptive system requires integrated framework revolving around the concept of resilience thinking, and adaptive system, in which resilience approach in this perspective is much richer than in the engineering perspective or system perspective. Complex adaptive systems (CAS) resilience seeing resilience as adaptive processes that enable system to prepare for, adapt to, and recover from disruptions (Carter et al., 2015; Wang et al., 2022). From the perspective of Complex Adaptive Systems (CAS), resilience is defined as the ability of a system to absorb disturbances and reorganize its resources while changing, ensuring the system continues to function and maintain its structure, identity, and feedback. CAS resilience emphasizes the interconnectedness and interdependencies among agents within the system, where even simple agents can collectively produce complex, emergent behaviors through correlated feedback mechanisms. This holistic approach highlights the system's capacity to adapt and evolve in response to external and internal changes, maintaining stability while allowing for dynamic, non-linear shifts in behavior (Carmichael & Hadžikadić, 2019). Examples of research conducted from this perspective are presented in the following table.

Table 3 Research on supply chain resilience influenced by CAS perspective

Author	Resilience definition	Properties
Al-Mutairi et al. (2022)	Resilience is a flexible strategy integrated into complex systems to manage unexpected disruptions by facilitating recovery, adaptation, and incorporating emergency preparedness and the exchange of information within the system.	Emergency planning, information sharing
Tukamuhabwa et al (2015)	Ability to prepare, respond and recover from disruption by developing adaptive capability, to achieve a better state of operation in a post-disruption situation.	Adaptive capability

The three perspectives discussed in the literature above, despite their distinct concepts, embody complementary ways of understanding how systems respond to disruptions. The engineering resilience perspective is built based on single equilibrium assumptions, emphasizing its approach to robustness and rapid recovery. This approach provides well-defined and tractable strategies to manage identifiable and short-term disruptions. However, the single-equilibrium assumption limits its applicability in addressing disruptions characterized by continuous changes. Hence, ecological resilience complements this limitation by acknowledging multiple stable states. This perspective is therefore more suitable in a situation where continuous and cascading disruptions are present, allowing the systems to absorb disruptions and reorganize accordingly. CAS perspective extends this understanding further by accounting for the non-linear interactions between agents leading to the emergence of behavior. This aspect was not fully discussed in both the engineering and ecological resilience concepts. These perspectives, despite their distinctive conceptual approach, yet addressing different dimensions and aspects of resilience, from recovery to adaptation and emergence behavior. Thus, instead of framing these perspectives as mutually exclusive, acknowledging them as complementary concepts will bring a holistic understanding of system behaviors in facing different disruptive situations. Therefore, this complementary nature becomes particularly relevant in addressing resilience in complex supply chains such as in the context of marine capture supply chains, where disruptions simultaneously span in operational, ecological, and socio-ecological aspects of the systems.

■3.0 METHODOLOGY

This research will employ systematic literature review (SLR) following PRISMA protocol to achieve its objective. The SLR was conducted in two phases. The first phase is to determine the state-of-the-art research in resilience supply chain. Another phase is to determine the current strategy management in marine fisheries to enhance its resilience (in general, not just in the context of SC). The phase of this SLR can be seen in fig. 1.

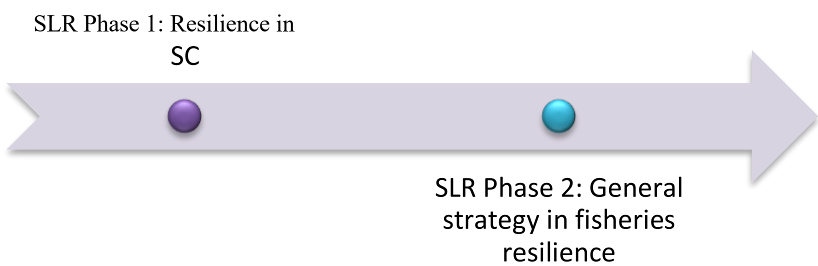

Figure 1. Phases in SLRs

The primary keywords used in the SLR phase 1 are "*supply chain*". The primary keywords are then followed by secondary keywords, which are "*resilient OR resilience OR resiliency*". It was sorted by the most relevant topics and only includes empirical research. The objective of phase 1 is to capture the general state-of-the-art in the supply chain resilience works across sectors, to gather a general understanding regarding the terminology itself. Hence, in this phase, there are no context limitations. The domain-specific literature collection strategy was then addressed in phase 2 by applying a more targeted keyword. This two-phase design aimed to balance the comprehensiveness of literature understanding in both perspectives mapping and deeper contextual specificity in strategy identification.

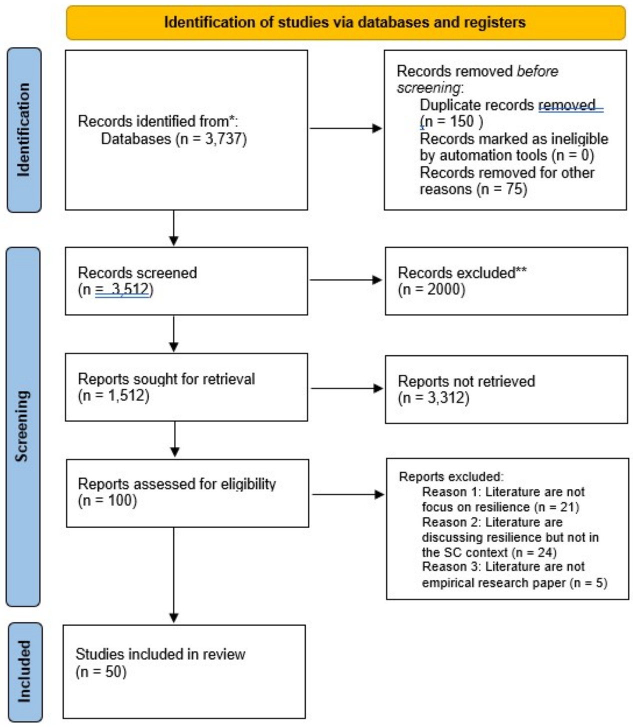

Figure 2 Prisma protocol for SLR phase 1

The process of PRISMA protocol can be seen in fig. 2. Further, this study also conducts SLR to generate insight regarding general resilience strategies in fisheries in the face of disruption (not being limited exclusively in the context of supply chain). The literature was collected from the ScienceDirect database, using the key string "(disruption) AND (marine fisheries) AND (supply chain)". The first screening was carried out by including only the latest 10 years of literature and only including research articles. 1,193 results appeared, of which 50 articles were collected after being sorted further based on relevance with the key strings. The purpose of the literature review in past studies on disruption in the marine capture fisheries is to find information regarding the characteristics of disruption and its impact on the supply chain. The process of PRISMA protocol can be seen in Fig. 3.

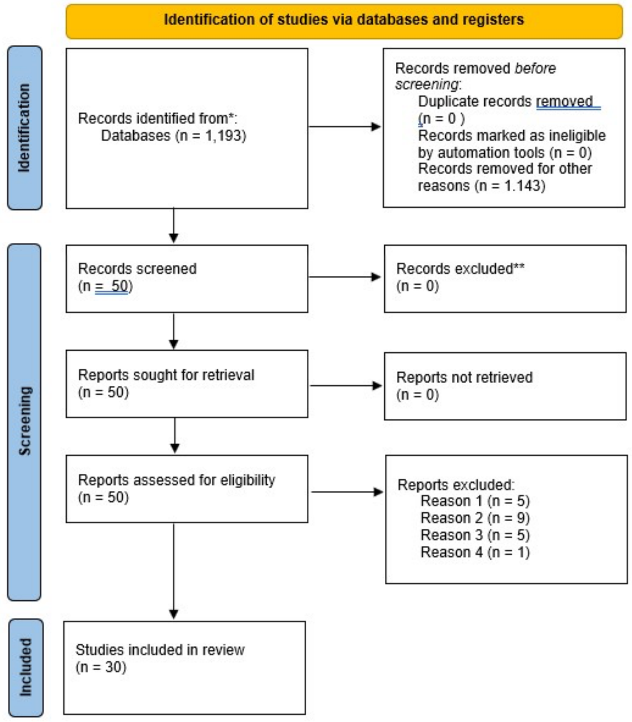

Figure 3. Prisma protocol for SLR phase 2

From this SLR, valuable information was derived to find what has not been done in research in the area of supply chain resilience that is needed to provide a handful of knowledge for building resilience in the context of the marine fisheries supply chain. The result of this SLR is discussed in the next section.

ScienceDirect became the focus database used in this study due to its wide coverage of peer-reviewed journals in supply chain, resilience, sustainability, and fishery-related research to ensure the quality of selected articles. However, the use of a single database introduces potential selection bias, considering relevant works might be found in other databases such as Scopus, Web of Science, or Google Scholar. Therefore, this represents a limitation of the study, which is recognized and discussed in the conclusion section. Nevertheless, ScienceDirect as the focus database, shows an extensive coverage of peer-reviewed journal articles in the area of supply chain, supply chain management, resilience, and fisheries-marine related research. Showing the sufficiency of a robust foundation to complete the study's objectives.

The keyword strategy was designed to capture a broad range of studies that comprise supply chain resilience, and to generate both a general and a complete understanding regarding the state-of-the-art research in supply chain resilience. Furthermore, this design also allows flexibility to include interdisciplinary research relevant to the marine fisheries theme. The screening process was conducted using inclusion and exclusion criteria based on relevance, publication type, and conceptual focus. This process ensures the input of the study, which only involves studies directly related to resilience perspectives and strategies. The two-phase article selection approach was then adopted to establish a theoretical foundation for resilience perspectives to gain an understanding only in the general resilience context. Subsequently, the second phase was conducted to identify context-specific strategies in marine fisheries. This levelling strategy design enables a structured linkage between the conceptual foundation and practical implementation. Details of the screening criteria can be found in Table 4.

Table 4 The inclusion and exclusion criteria of the screening process

Criterion	Inclusion	Exclusion
Publication type	Perr-reviewed research articles	Reviews, editorial, book chapters, conference papers, magazines
Timeframe	Published within 10 years	Published before 2014
Phase 1 – conceptual focus	Empirical studies directly address supply chain resilience topic	Studies not focusing on supply chain resilience or discussing resilience outside the supply chain context
Phase 2 – conceptual focus	Studies addressing disruptions in marine fisheries and their SC	Studies on aquaculture, freshwater fisheries, or other unrelated sectors

	impacts	
Language	English	Non-English publications

Phase 1 of this study synthesizes the resilience perspectives and compares the engineering, ecological, and CAS resilience perspective. This deep understanding of each concept served as a conceptual lens to further identify strategies in Phase 2. Therefore, both of the phases in this SLR are methodologically linked through the analytical categories synthesized from Phase 1. The categorization and interpretation of resilience strategies in Phase 2 is hence not a stand-alone method; instead, it is informed by the theoretical understanding developed in Phase 1. Therefore, there is a structurally coherent connection between the conceptual foundation synthesis and practical strategy identification. This two-phase strategy, hence, allows this study to gather a full understanding of the theoretical concept as well as its contextual application in a structurally grounded manner.

■4.0 RESULTS

The preceding review of resilience perspectives in various literature reveals the complementary lens of engineering, ecological, and CAS resilience perspectives, instead of focusing on the distinction and how each perspective is better than others. However, it is important to understand the current dominant perspectives of resilience and its implications in the marine fisheries supply chain. Therefore, this section presents the findings of the two-stage literature review. The first layer is mapping the state-of-the-art of supply chain resilience across different perspectives. The second layer then identifies a range of strategies utilized in marine fisheries resilience practice. Combining these findings, this study provides the empirical basis for further integrative analysis developed in the discussion section.

The first SLR phase managed to collect 50 of the most relevant papers through the ScienceDirect database using the keywords “supply chain resilience”, including empirical research only. The result of this SLR shows that the empirical study in the area of supply chain resilience (see Table 5), mostly adopts engineering resilience, emphasizing designing a fail-safe supply chain that has robustness in facing unexpected events. Further, Figure 4 shows the major themes being discussed in the papers; it shows that the main concern of research in the area of supply chain resilience is to design a resilient supply chain network. Research in the area focuses on finding the optimum network configuration. While the sector that is mostly taken as a context is the pharmaceutical sector (see Fig. 5).

The result that shows the dominance of network design (Fig. 4) and the predominance of the pharmaceutical sector as study context (Fig. 5) shows how these phenomena are mutually reinforced and collectively explain the pattern of distribution as shown in Table 5. The SCN (supply chain network design) commonly deals with the optimum configuration of supply networks under various circumstances, is fundamentally an engineering resilience problem. The supply network will be designed in advance to be able to withstand predictable disruptions, where optimization is the common analytical tool employed. Moreover, the pharmaceutical sector is particularly amenable to this framing. In this sector, the supply chains are relatively and supposed to be controlled, and regulatory driven with an applied standard along the whole process and network. Therefore, this sector needs a robust approach and a fail-safe design. The methodological and contextual preference, hence showing the need for an approach that holds on to stability as fundamental, where the engineering resilience assumptions hold reasonably well.

This result, which highlights the concentration of both methodological approach and contextual practice, is very important to understand for the present study, especially because the marine fisheries supply chain held a very different nature in terms of system’s fundamentals compared with the pharmaceutical context. Marine capture fisheries are ecologically embedded, community-inherent, and exposed to the dynamic and unpredictable disruptions stemming from non-linear interactions between and within systems, where optimization may not work well in these circumstances. Therefore, there is a conceptual mismatch between the concentration of the literature and the needs of the marine fisheries supply chain as a socio-ecological systems. While the literature concentrates on the controlled sectors amenable to engineering resilience, marine capture fisheries sectors need a more fundamentally adaptive approach, acknowledging the dynamics and complexity of the marine fisheries system. This mismatch motivates the integrative perspective developed in this study. Figure 4 and 5 not only describes the current state-of-the-art of the literature but also justify the need to move beyond the engineering resilience perspective as the dominant and default lens.

Table 5. Perspectives in recent supply chain resilience research

Resilience Perspective	**References**
Engineering resilience	Aghajani, Ali Torabi, and Altay 2023; Ahmed et al. 2023; Arabi and Gholamian 2023; Aldrighetti, Battini, and Ivanov 2023; Alexopoulos et al. 2023; Alikhani et al. 2023; Bag et al. 2023; Barbosa-Póvoa and Pinto 2023; Bowen and Siegler 2023; Chen and Chen 2023; Clavijo-Buritica, Triana-Sanchez, and Escobar 2023; Daryanian, Kazemi, and Adibi 2023; Echefaj, Charkaoui, and Cherrafi 2022; Fazel, Rostamkhani, and Rashidnejad 2023; Foroozesh et al. 2023; Furstenau et al. 2022; Gökler and Boran 2023; Habibi, Chakrabortty, and Abbasi 2023; Hossain, Rahman, and Liza 2023; Ivanov and Dolgui 2021; Ivanov et al. 2022; J. Liu, Wu, and Gong 2023; M. Liu et al. 2022; Lo et al. 2023; Mahmud et al. 2023; Moadab et al. 2023; Mohammed et al. 2023; Nayeri, Sazvar, and Heydari 2022; Nayeri et al. 2023; Nazari-Shirkouhi et al. 2023; Olfati and Paydar 2023; Rabbani et al. 2022; Schoenherr et al. 2023; Shokouhifar and Ranjbarimesan 2022; Tirkolaee et al. 2023; Vali-Siar and Roghanian 2022; Vergara, Martínez, and Salais-Fierro 2023; Yazdani et al. 2022; Zeng et al. 2023; Vimal et al. 2022; Salehi et al. 2022)
Ecological resilience	Centobelli et al. 2023; Ynacay-Nye et al. 2022; Achmad, Chaerani, and Perdana 2021
CAS resilience	Hervani et al. 2022; Junaid et al. 2023; Patidar et al. 2023; Singh et al. 2023; Wang, Zhou, and Zhao 2022; Adobor and McMullen 2018

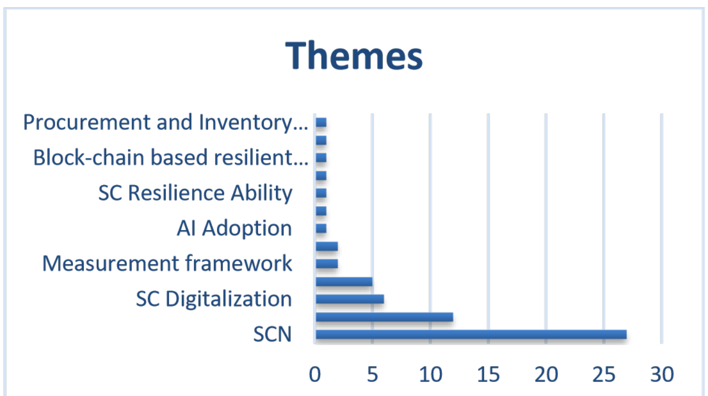

Figure 4. Themes that are mostly being discussed in research about supply chain resilience

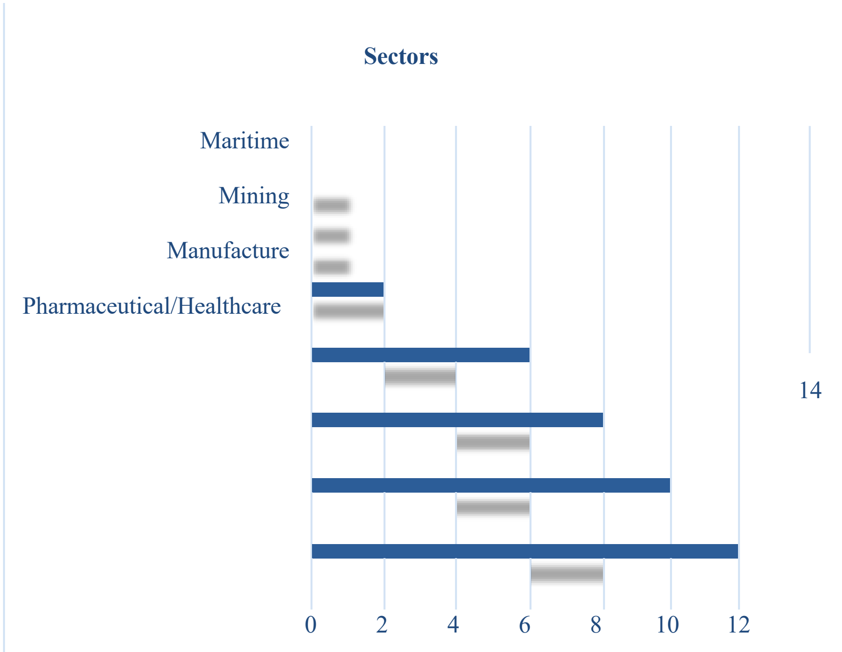

Figure 5. Sectors that are mostly being discussed in research about supply chain resilience

From this result, we can see that the current focus and dominant perspective for research in the area of supply chain resilience is engineering resilience. The dominance of this perspective reflects the preference of most recent works for efficiency-driven and recovery-oriented approaches in supply chain research. However, overly focusing on only the engineering resilience perspective potentially limits the ability to address long-term and cascading disruptions, which require an adaptive and system-level approach to manage the disruption impact. Further, this research will see from the result of the second SLR, what the general areas of strategies are needed by the marine fisheries supply chain to be resilient. The result of this SLR can be seen in Table 6.

The persistence of engineering resilience in the literature was reinforced by consistent methodological approaches that appear to predominate supply chain management research, namely mathematical modelling, network optimization, and simulation. These presences show that those methodologies are well-suited for an engineering resilience approach, assuming single equilibrium states, a controllable environment, and predictable disruptions. However, these methods are less equipped to handle the dynamics of socio-ecological ecosystems distinguished by continuous adaptation and non-linear interactions that create emergent behaviors. A situation where ecological and CAS resilience concepts are fit in. Consequently, when engineering resilience dominates the approach in this research area, there is a methodological lock-in due to the inability of the predominant analytical methods to reinforce those other conceptual approaches. This situation has significant consequences for research in the marine capture fisheries context, specifically, since in this context the supply chains are closely related and strongly influenced by ecological and social dynamics such as ecosystem degradation, adaptation failure in fishing and coastal communities, and other possible unpredictable situations. Therefore, relying solely on engineering resilience is inadequate to analyze and understand supply chain resilience in the marine fisheries context.

Strategies shown in Table 6 can be categorized into five broad categories as seen in Fig. 6. There are four categories of strategies, namely: SC operations, ecological aspect, socio-economy aspect. and policy and regulations

Table 6 Strategies to realize resilience in marine fisheries

Aspects	Strategy	References
SC Operation	Market diversification	(Amaralal et al., 2023; Asche et al., 2022; Gonzalez-Pestana et al., 2023; Grillo-Núñez et al., 2021; Kobayashi, 2022)
	Market channel diversification	(Amaralal et al., 2023; Islam et al., 2021; Kemp et al., 2023; Soares et al., 2022; Sugimoto et al., 2022)
	Coordination between agent in the SC	(Cousido-Rocha et al., 2023)
	Digital innovation	(Kemp et al., 2023; Kundu & Santhanam, 2021)
	Compliance with SC standards and regulations	(Kemp et al., 2023)

	Commodity diversification	(Kobayashi, 2022)
	Information sharing regarding shocks in the commodity	(Simard et al., 2022)
	Increase visibility and control in the SC	(Thompson & Rust, 2023)
	Distribution system diversification	(Vergara-Solana et al., 2022)
	Fishing activities diversification	(Coll et al., 2021; Gonzalez-Pestana et al., 2023)
	Gaining more knowledge regarding new species	(Marchessaux et al., 2023)
	SC network diversification	(Bassett et al., 2021)
	Coordinated response towards disruption among agent in the SC	(Cousido-Rocha et al., 2023)
	Develop a strong domestic SC	(Grillo-Núñez et al., 2021)
	SC monitoring	(Kundu & Santhanam, 2021)
	SC Network diversification	(Vergara-Solana et al., 2022)
	SC integration	(Kobayashi, 2022)
Ecological Management	Climate and environmental change mitigation	(Kobayashi, 2022)
	Applying conservation policy	(Maltby et al., 2023)
	Target species diversification	(Marchessaux et al., 2023; Sugimoto et al., 2022)
	Habitat restoration and conservation	(Stoll et al., 2015)
	Holistic and integrated resource management	(Kemp et al., 2023)
	Protection of marine habitats	(Kemp et al., 2023)
	Habitat restoration and conservation	(Stoll et al., 2015)
	Holistic and integrated resource management	(Kemp et al., 2023)
	Protection of marine habitats	(Kemp et al., 2023)
	Habitat restoration and conservation	(Stoll et al., 2015)
	Holistic and integrated resource management	(Kemp et al., 2023)
	Protection of marine habitats	(Kemp et al., 2023)
Socio-economic Management	Income diversification	(Kundu & Santhanam, 2021)
	Shoreside infrastructure, facilities, and services	(Maltby et al., 2023)
	Fisher's capacity improvement	(Amaralal et al., 2023; Islam et al., 2021)
	Increase in producing value-added products	(Amaralal et al., 2023)
	Improve fisher's livelihood	(Amaralal et al., 2023; Chumchuen et al., 2022)
	Co-management/social network	(Maltby et al., 2023; Stoll et al., 2015)
	Influencing dominant actors to adopt new technology	(Thompson & Rust, 2023)
	Protecting waterfront	(Maltby et al., 2023)
	Income diversification	(Kundu & Santhanam, 2021)
	Shoreside infrastructure, facilities, and services	(Maltby et al., 2023)
Public policy	Government's support in fishing activities	(Amaralal et al., 2023)
	Government's recognition regarding the role of the sector	(Grillo-Núñez et al., 2021)
	Government's support in funding	(Islam et al., 2021; Nyiawung et al., 2022)
	Fisheries community involvement in the development of public policy	(Withouck et al., 2023)
	Comprehensive policy framework	(Kundu & Santhanam, 2021)
	Fair and equal public policy	(Owusu & Adjei, 2021)

From this result, we can see that multiple facets need to be taken into consideration in realizing resilience in the marine fisheries sector. This broad categorization shows the need to see the resilience problems in a more holistic manner, not only in the operation sector. This is due to the nature of the supply chain that is being affected by its environment (Lim-Camacho et al., 2021; Woods, 2015). Hence, developing supply chain resilience in the marine fisheries sector will not be resilient when we only see the operations in silo. Since the ecological, socio-economic, and governance aspect plays important role in enhancing the resilience in the sector.

The four strategies are inseparable and analytically connected to the three distinct resilience perspectives as synthesized in phase 1 of the review. The SC operations strategies, including market diversification, supplier diversification, SCN reconfiguration, and digital technology utilization, are directly aligned with the engineering resilience perspective. In this angle, the operational disruptions are addressed through redundancy, flexibility, and rapid recovery strategies to re-stabilize the system into its original state. The ecological management strategies, including habitat restoration and integrated source management, on the other hand, address the multiple stable states, acknowledging the multi-stable dynamics of marine ecosystems. Moreover, the socio-economic management, public policy, and regulations related strategies are strongly aligned to CAS resilience. Strategies, including co-management, livelihood improvement, government stimulus, and community support, will address non-linear interactions and emergence behaviors needed to recognize resilience at the system level. At this level, resilience will depend on the learning capacity and adaptivity of the agents within the system.

Considering the relations between these four strategies and the theoretical concept, it can be understood that these strategies are not mutually exclusive. Instead, they are interdependent and hierarchically nested. SC operations strategies are the most measurable strategies, but are insufficient in handling more complex systems that are related to ecological foundations. Ecological resilience supports the ecological context but requires a more strategic interpretation to be implemented at the supply chain management level. Socio-economic and policy strategies act as enabling conditions, without which, there would not be a supportive ecosystem that allows both operational and ecological strategies to be implemented. Resilience in the marine fisheries supply chain context, therefore, won’t be realized by only addressing a single strategy. Instead, it takes the coordinated interactions across these distinct yet related strategies. Seeing from a bigger angle, it implies that resilience in the marine capture supply chain needs an integrative logic that the three-perspective framework developed in this study.

Figure 6 Categorization for the area of strategy in developing resilience in marine fisheries sector

Each of the mentioned perspectives serves a special situation, hence the relevance depends on the nature of the disruptions and system conditions. Engineering resilience is more suitable to apply in a stable and controlled environment where the disruptions are identifiable, and a predefined state is feasible. In a situation where continuous disruptions emerge and prolonged adaptation is required; ecological resilience is more relevant. The CAS perspective is particularly important in the context of highly interconnected and dynamic system, with nonlinear disruptions where outcomes are difficult to predict. Therefore, it is important to understand the nature of the disruptions, and the conceptual of each approach to be able to select and combine the relevant perspectives to be elaborated further into actionable strategies. The comparation of each perspective can be seen in Table 7.

Table 7 Comparison of each resilience perspective

Perspective	Core Assumption / Focus of Resilience	System Behavior	Suitable Context	Limitations
Engineering	System returns to recovery & efficiency equilibrium	Linear	Short-term disruptions	Assumes a single equilibrium, neglecting nonlinear interactions and system evolution
Ecological	Adaptation & multiple stable states persistence	Non-linear	Environmental variability	Not fully accounting for nonlinear interactions and emergent behaviors
CAS	Dynamic, Complex & interconnected	Emergence & evolution adaptive system	High uncertainty & interdependence	Highly complex and less tractable for operational level implementation; difficult to measure using optimization approach

While this study does not aim to develop a fully operational model, the synthesis of perspectives contributes to a better understanding of resilience in the marine fisheries supply chain as a multi-dimensional construct. Engineering resilience captures recovery-oriented responses, ecological resilience focuses on adaptive capacity, and CAS resilience highlights system complexity and system interdependencies. Instead of seeing these perspectives as mutually exclusive, understanding the whole provides complementary lenses to have a better understanding on how resilience is formed and maintained in the different contexts.

5.0 DISCUSSION

From the SLR result, it is clear that engineering resilience is currently the most common perspective being used in developing a resilience model in the supply chain. The supply chain resilience developed in this perspective aims to develop a fail-safe design supply chain network that has the ability to withstand the disruptions that are seen as unwanted and unexpected events. However, when we took a wider perspective, seeing what it needs to be resilient in the marine fisheries sector itself, we can see that various strategies in different areas are needed. We need to think about the livelihood of the fishermen. We need to see how the government's policy on subsidies and climate change might impact the sector. We need to see how the operations should be designed and set up by seeing the dynamics in the sector. Thus, seeing resilience from static perspective, by mainly considering the optimum network configuration, poses a risk of being ineffective to be applied in the sector, especially in the long run. Fisheries and supply chains are both complex systems, and both are adaptive systems (Andriguetto-Filho et al., 2022; Ayers, 2001; MacCarthy et al., 2022; Mahon et al., 2008). Thus, when the concern comes to developing resilience in the marine fisheries supply chain, a broader holistic approach is needed that captures the dynamics of the system, the interactions among agents that resulted in dynamic emergence behavior to see what is actually needs to be enhanced by the sector to be resilient.

6.0 CONCLUSION, LIMITATIONS AND FUTURE DIRECTION

The resilience of marine fisheries supply chains cannot be effectively enhanced through the traditional engineering resilience perspective alone. While engineering resilience focuses on robustness and rapid recovery, it overlooks the complex interdependencies and dynamic changes within marine ecosystems. By integrating ecological and CAS resilience perspectives, we can better understand and address the multifaceted challenges faced by the fisheries sector. This comprehensive approach not only helps in maintaining the ecological balance and biodiversity but also supports the economic stability and social structures of coastal communities.

Furthermore, adopting a holistic resilience framework can improve the sector's ability to adapt to environmental changes and economic fluctuations. It highlights the importance of market and commodity diversification, digital innovation, and coordinated response strategies. These measures can mitigate the impacts of disruptions, ensuring the continuous flow of marine resources from harvest to market. This study underscores the need for adaptive management practices that are responsive to both immediate crises and long-term environmental changes.

The three resilience perspectives discussed in this study were framed as analytically complementary and hierarchically nested to understand resilience in the marine capture fisheries supply chain. The operational layer was addressed using engineering resilience, focusing on how the system could absorb and recover from disruptions by focusing on robustness and redundancy. The resource layer, which is a unique aspect of the marine fisheries supply chain and closely related to the marine ecosystem, should then be addressed with ecological resilience, focusing on the adaptive capacity of the system across multiple stable states, instead of a single. The systemic layer covering the bigger socio-ecological ecosystem should then be addressed using CAS resilience approach, where the whole system's capacity to learn and evolve through continuous adaptation in response to non-linear disruptions became the main focus. Therefore, neither of these perspectives and strategical approaches is adequate to work as a stand-alone. These three layers are nested in a complementary structure, forming an integrative perspective offered by this study. This study proposed a structured synthesis that moves beyond using only a single or fragmented approach to address the complexity of resilience in the context of the marine capture fisheries supply chain.

Policymakers and stakeholders, therefore, must collaborate to implement a multi-faceted approach to resilience in marine fisheries supply chains. This includes: 1) Market and Commodity Diversification: Encouraging diversification to reduce dependency on single markets or species, which can help buffer against economic shocks and environmental changes; 2) Digital Innovation: Investing in digital technologies to improve supply chain visibility, enhance coordination among stakeholders, and facilitate rapid response to disruptions; 3) Integrated Resource Management: Adopting holistic and integrated management practices that consider the interdependencies between marine ecosystems and human communities; 4) Policy Support: Developing comprehensive policy frameworks that support sustainable fishing practices, provide financial assistance, and involve fishing communities in decision-making processes; and 5) Education and Capacity Building: Enhancing the capacity of fishers and related stakeholders through training and education on sustainable practices and resilience strategies. By implementing these recommendations, the marine fisheries sector can enhance its resilience, ensuring the sustainability of marine resources and the livelihoods of those who depend on them.

This study contributes to the literature by providing a structured synthesis of resilience perspectives in marine fisheries supply chains. By providing a complete understanding regarding engineering, ecological, and complex adaptive system resilience perspectives, this study also offers complementary insights in managing various nature of disruptions. Rather than proposing a fully operational framework, this study accounts for the different relations within the perspectives, thereby supporting a more integrated understanding of resilience, especially in the context of the marine fisheries supply chain.

The theoretical advancement contributed by this study is not by proposing a new resilience perspective; instead, this study reframes how the three seems to be distinct conceptual approaches can actually complement each other to provide a more complete lens on resilience development in the marine capture fisheries supply chain, while most of the established literature in supply chain resilience presents engineering, ecological, and CAS resilience as competing frameworks, leaving manager to choose one of this perspective. This study challenges this predominant framing by showing how these three conceptual layers can actually act as interdependent layers of the same system, covering operational, ecological, and systemic aspects of the system. Hence, in the context of marine capture fisheries supply chain, the resilience state can be achieved by acknowledging these three layers. This reframing is the key contribution of this study. Instead of acknowledging each resilience perspective as a mutually exclusive concept, this study moves towards a perspective-integration logic by applying these three perspectives as complementary and mutually enabling. This new framing could be found useful in any socioecological supply chain contexts such as fisheries, forestry, and any similar contexts that are characterized by inseparable interactions between operational, ecological, and social dimensions.

The findings of this study provide practical insights for practitioners and policy makers by emphasizing the importance of considering multiple perspectives, instead of focusing on a single perspective when addressing various disruptions in different systems, especially related to marine fisheries supply chains. Considering the nature of the disruptions and the systems is important to determine resilience perspective and strategy selection. However, further empirical research is needed to validate and expand on how these different perspectives can be specifically applied in a specific context. This study, however, is subject to several limitations, including the use of a single database and the scope of the keyword strategy, which may affect the comprehensiveness of the reviewed literature. Future research may expand the use of database sources and refine the selection strategy to enhance the robustness of the study. Future studies also may further develop this work by constructing operational models or an empirical framework that integrate how these different perspectives may be implemented and examined in real-world supply chain systems across different contexts.

Acknowledgement

This research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors.

References

Achmad, A. L. H., Chaerani, D., & Perdana, T. (2021). Designing a food supply chain strategy during COVID-19 pandemic using an integrated Agent-Based Modelling and Robust Optimization. *Heliyon*, 197–210. https://doi.org/https://doi.org/10.1016/j.heliyon.2021.e08448 2405-8440/©

Adobor, H., & McMullen, R. S. (2018). Supply chain resilience: a dynamic and multidimensional approach. *International Journal of Logistics Management*, *29*(4), 1451–1471. https://doi.org/10.1108/IJLM-04-2017-0093

Aghajani, M., Ali Torabi, S., & Altay, N. (2023). Resilient relief supply planning using an integrated procurement-warehousing model under supply disruption. *Omega (United Kingdom)*, *118*, 102871. https://doi.org/10.1016/j.omega.2023.102871

Ahmed, T., Karmaker, C. L., Nasir, S. B., Moktadir, M. A., & Paul, S. K. (2023). Modeling the artificial intelligence-based imperatives of industry 5.0 towards resilient supply chains: A postCOVID-19 pandemic perspective. *Computers and Industrial Engineering*, *177*(January), 109055. https://doi.org/10.1016/j.cie.2023.109055

Al-Mutairi, A., AlKheder, S., Alzwayid, S., Talib, D., Heji, M. B., & Lambert, J. H. (2022). Scenariobased preferences modeling to investigate port initiatives resilience. *Technological Forecasting and Social Change*, *176*(July 2021), 121498. https://doi.org/10.1016/j.techfore.2022.121498

Aldrighetti, R., Battini, D., & Ivanov, D. (2023). Efficient resilience portfolio design in the supply chain with consideration of preparedness and recovery investments. *Omega (United Kingdom)*, *117*. https://doi.org/10.1016/j.omega.2023.102841

Aldrighetti, R., Calzavara, M., Zennaro, I., Battini, D., & Ivanov, D. (2022). A methodological framework for efficient and resilient supply network design. *IFAC-PapersOnLine*, *55*(10), 2840–2845. https://doi.org/10.1016/j.ifacol.2022.10.161

Alexopoulos, K., Weber, M., Trautner, T., Manns, M., Nikolakis, N., Weigold, M., & Engel, B. (2023). An industrial data-spaces framework for resilient manufacturing value chains. *Procedia CIRP*, *116*, 299–304. https://doi.org/10.1016/j.procir.2023.02.051

Ali, S. M., Bari, A. B. M. M., Rifat, A. A. M., Alharbi, M., Choudhary, S., & Luthra, S. (2022). Modelling supply chain disruption analytics under insufficient data: A decision support system based on Bayesian hierarchical approach. *International Journal of Information Management Data Insights*, *2*(2), 100121. https://doi.org/10.1016/j.jjimei.2022.100121

Alikhani, R., Ranjbar, A., Jamali, A., Torabi, S. A., & Zobel, C. W. (2023). Towards increasing synergistic effects of resilience strategies in supply chain network design. *Omega (United Kingdom)*, *116*, 102819. https://doi.org/10.1016/j.omega.2022.102819

Amaralal, K. H. M. L., Edirimanna, E. M. A. P., Lakmini, W. A. S. W., Chamodi, K. K. D., Kuragodage, A. U., Sanuja, R. G., Bandara, E. G. K. Y. C., Maheepala, M. M. A. S., Abeykoon, M. N. D. F., Sadaruwan, K. P. G. L., Kuganathan, S., & Deepananda, K. H. M. A. (2023). Impacts of COVID-19 pandemic on the fisheries sector of Sri Lanka. *Marine Policy*, *147*(October 2022), 105339. https://doi.org/10.1016/j.marpol.2022.105339

Andriguetto-Filho, J. M., Medeiros, R. P., Vaz-dos-Santos, A. M., & Chaves, P. de T. da C. (2022). Shrimp up, fish down, and vice-versa: Fishers' strategies and long-term changes in small-scale fisheries landings at two spatial levels in Southern Brazil. *Marine Policy*, *143*(November 2021). https://doi.org/10.1016/j.marpol.2022.105184

Arabi, M., & Gholamian, M. R. (2023). Resilient closed-loop supply chain network design considering quality uncertainty: A case study of stone quarries. *Resources Policy*, *80*(December 2021), 103290. https://doi.org/10.1016/j.resourpol.2022.103290

Asche, F., Sogn-Grundvåg, G., & Zhang, D. (2022). Large-scale fisheries during the COVID-19 pandemic: The case of the oceangoing groundfish fleet in Norway. *Marine Policy*, *144*(May), 105223. https://doi.org/10.1016/j.marpol.2022.105223

Ayers, J. B. (2001). Handbook of Supply Chain Management. In *Handbook of Supply Chain Management*. St. Lucie Press. https://doi.org/10.1201/9781420025705-46

Bag, S., Dhamija, P., Luthra, S., & Huisingh, D. (2023). How big data analytics can help manufacturing companies strengthen supply chain resilience in the context of the COVID-19 pandemic. *International Journal of Logistics Management*, *34*(4), 1141–1164. https://doi.org/10.1108/IJLM-02-2021-0095

Bakhsh, M. et al. (2024) 'THE ROLE OF FISH IN GLOBAL FOOD AND NUTRITION SECURITY : CURRENT ASPECTS AND FUTURE PROSPECTS', University of Sindh Journal of Animal Sciences, 7(4), pp. 23–35.

Barbosa-Póvoa, A. P., & Pinto, J. M. (2023). Resilient supply chains – robustness and dynamics in the context of industrial gas supply chains. *Computers and Chemical Engineering*, *179*(July). https://doi.org/10.1016/j.compchemeng.2023.108435

Bassett, H. R., Lau, J., Giordano, C., Suri, S. K., Advani, S., & Sharan, S. (2021). Preliminary lessons from COVID-19 disruptions of small-scale fishery supply chains. *World Development*, *143*, 105473. https://doi.org/10.1016/j.worlddev.2021.105473

Bowen, F., & Siegler, J. (2023). The role of visibility in supply chain resiliency: Applying the Nexus supplier index to unveil hidden critical suppliers in deep supply networks. *Decision Support Systems*, *June 2022*, 114063. https://doi.org/10.1016/j.dss.2023.114063

Boyd, C.E., Mcnevin, A.A. and Davis, R.P. (2022) 'The contribution of fisheries and aquaculture to the global protein supply', Food Security, pp. 805–827. Available at: https://doi.org/10.1007/s12571-021-01246-9.

Carmichael, T., & Hadžikadić, M. (2019). The Fundamentals of Complex Adaptive Systems. In *Complex Adaptive Systems: Views from the Physical, Natural, and Social Sciences* (pp. 1–16). Springer. https://doi.org/10.1007/978-3-030-20309-2_1

Carter, C. R., Rogers, D. S., & Choi, T. Y. (2015). Toward the theory of the supply chain. *Journal of Supply Chain Management*, *51*(2), 89–97. https://doi.org/10.1111/jscm.12073

Centobelli, P., Cerchione, R., Maglietta, A., & Oropallo, E. (2023). Sailing through a digital and resilient shipbuilding supply chain: An empirical investigation. *Journal of Business Research*, *158*(January), 113686. https://doi.org/10.1016/j.jbusres.2023.113686

Chen, S., & Chen, Y. (2023). Designing a resilient supply chain network under ambiguous information and disruption risk. *Computers and Chemical Engineering*, *179*(June). https://doi.org/10.1016/j.compchemeng.2023.108428

Chumchuen, W., Chumchuen, S. V., Kajonrit, K., & Krueajun, K. (2022). COVID-19 and Thai marine capture fishery in the Gulf of Thailand: A case of small-scale fishery versus industrial fishery. *Marine Policy*, *144*(July), 105240. https://doi.org/10.1016/j.marpol.2022.105240

Clavijo-Buritica, N., Triana-Sanchez, L., & Escobar, J. W. (2023). A hybrid modeling approach for resilient agri-supply network design in emerging countries: Colombian coffee supply chain. *Socio-Economic Planning Sciences*, *85*(June 2022). https://doi.org/10.1016/j.seps.2022.101431

Coll, M., Ortega-Cerdà, M., & Mascarell-Rocher, Y. (2021). Ecological and economic effects of COVID-19 in marine fisheries from the Northwestern Mediterranean Sea. *Biological Conservation*, *255*(September 2020). https://doi.org/10.1016/j.biocon.2021.108997

Coronado, E., Salas, S., Cepeda-González, M. F., & Chuenpagdee, R. (2020). Who's who in the value chain for the Mexican octopus fishery: Mapping the production chain. *Marine Policy*, *118*(May). https://doi.org/10.1016/j.marpol.2020.104013

Cousido-Rocha, M., Carballo, M. G., Pennino, M. G., Coll, M., & Báez, J. C. (2023). Differential effect of fisheries to the COVID-19 pandemic in the region of Andalusia (Spain). *Marine Policy*, *148*(December 2022). https://doi.org/10.1016/j.marpol.2022.105442

Daryanian, N., Kazemi, A., & Adibi, M. A. (2023). A fuzzy robust stochastic model for designing a pharmaceutical supply chain with sustainability and resiliency dimensions. *Applied Soft Computing*, *143*, 110357. https://doi.org/10.1016/j.asoc.2023.110357

Dubey, R., Bryde, D. J., Dwivedi, Y. K., Graham, G., Foropon, C., & Papadopoulos, T. (2023). Dynamic digital capabilities and supply chain resilience: The role of government effectiveness. *International Journal of Production Economics*, *258*(June 2022), 108790. https://doi.org/10.1016/j.ijpe.2023.108790

Echefaj, K., Charkaoui, A., & Cherrafi, A. (2022). Analyzing Capabilities for Resilient Supply Chain in Unexpected Event. *IFAC-PapersOnLine*, *55*(10), 3190–3195. https://doi.org/10.1016/j.ifacol.2022.10.220

Fazel, S. J., Rostamkhani, M., & Rashidnejad, M. (2023). Proposing a bi-objective model for the problem of designing a resilient supply chain network of pharmaceutical-health relief items under disruption conditions by considering lateral transshipment. *EURO Journal on Decision Processes*, *11*(May), 100037. https://doi.org/10.1016/j.ejdp.2023.100037

Fernández-Miguel, A., Riccardi, M. P., Veglio, V., García-Muiña, F. E., Fernández del Hoyo, A. P., & Settembre-Blundo, D. (2022). Disruption in Resource-Intensive Supply Chains: Reshoring and Nearshoring as Strategies to Enable Them to Become More Resilient and Sustainable. *Sustainability (Switzerland)*, *14*(17). https://doi.org/10.3390/su141710909

Folke, C. (2006). Resilience: The emergence of a perspective for social-ecological systems analyses. *Global Environmental Change*, *16*(3), 253–267. https://doi.org/10.1016/j.gloenvcha.2006.04.002

Folke, C., Carpenter, S., Walker, B., Scheffer, M., Elmqvist, T., Gunderson, L., & Holling, C. S. (2004). Regime shifts, resilience, and biodiversity in ecosystem management. *Annual Review of Ecology, Evolution, and Systematics*, *35*, 557–581. https://doi.org/10.1146/annurev.ecolsys.35.021103.105711

Foroozesh, N., Karimi, B., & Mousavi, S. M. (2022). Green-resilient supply chain network design for perishable products considering route risk and horizontal collaboration under robust intervalvalued type-2 fuzzy uncertainty: A case study in food industry. *Journal of Environmental Management*, *307*(December 2021), 114470. https://doi.org/10.1016/j.jenvman.2022.114470

Foroozesh, N., Karimi, B., Mousavi, S. M., & Mojtahedi, M. (2023). A hybrid decision-making method using robust programming and interval-valued fuzzy sets for sustainable-resilient supply chain network design considering circular economy and technology levels. *Journal of Industrial Information Integration*, *33*(February), 100440. https://doi.org/10.1016/j.jii.2023.100440

Furstenau, L. B., Zani, C., Terra, S. X., Sott, M. K., Choo, K. K. R., & Saurin, T. A. (2022). Resilience capabilities of healthcare supply chain and supportive digital technologies. *Technology in Society*, *71*(August), 102095. https://doi.org/10.1016/j.techsoc.2022.102095

Gholami-Zanjani, S. M., Klibi, W., Jabalameli, M. S., & Pishvaee, M. S. (2021). The design of resilient food supply chain networks prone to epidemic disruptions. *International Journal of Production Economics*, *233*(December 2020), 108001. https://doi.org/10.1016/j.ijpe.2020.108001

Gilman, E., Chaloupka, M., Booth, H., Hall, M., Murua, H., & Wilson, J. (2023). Bycatch-neutral fisheries through a sequential mitigation hierarchy. *Marine Policy*, *150*(September 2022), 105522. https://doi.org/10.1016/j.marpol.2023.105522

Gökler, S. H., & Boran, S. (2023). A novel resilient and sustainable supplier selection model based on D-AHP and DEMATEL methods. *Journal of Engineering Research*, *July*, 0–2. https://doi.org/10.1016/j.jer.2023.07.015

Gonzalez-Pestana, A., Thorne, D. C. S., Alfaro-Shigueto, J., & Mangel, J. C. (2023). Vulnerabilities of northern Peruvian small-scale fishing communities revealed by the COVID-19 pandemic. *Marine Policy*, *149*(January), 105503. https://doi.org/10.1016/j.marpol.2023.105503

Grillo-Núñez, J., Mendo, T., Gozzer-Wuest, R., & Mendo, J. (2021). Impacts of COVID-19 on the value chain of the hake small scale fishery in northern Peru. *Marine Policy*, *134*. https://doi.org/10.1016/j.marpol.2021.104808

Habibi, F., Chakrabortty, R. K., & Abbasi, A. (2023). Evaluating supply chain network resilience considering disruption propagation. *Computers and Industrial Engineering*, *183*(August), 109531. https://doi.org/10.1016/j.cie.2023.109531

Heck, N., Beck, M.W. and Reguero, B. (2021) 'Storm risk and marine fisheries : a global assessment', Marine Policy, 132(July), p. 104698. Available at: https://doi.org/10.1016/j.marpol.2021.104698.

Hervani, A. A., Nandi, S., Helms, M. M., & Sarkis, J. (2022). A performance measurement framework for socially sustainable and resilient supply chains using environmental goods valuation methods. *Sustainable Production and Consumption*, *30*, 31–52. https://doi.org/10.1016/j.spc.2021.11.026

Holling, C. S. (1973). Resilience and stability of ecological systems. *Annual Review of Ecology and Systematics*, *4*(November), 1–23.

Holling, C. S. (1996). Engineering resilience versus ecological resilience. In *Engineering within ecological constraints* (Issue 1996, pp. 31–43). http://books.google.com/books?hl=en&lr=&id=QE4ydbFti7AC&oi=fnd&pg =PA31&dq=Engineering+Resilience+versus+Ecological+Resilience&ots=28zLqqlAv u&sig=WgX_0iLQ9jQ4EqFLbgqxBY2aBYE

Holling, C. S. (2001). Understanding the complexity of economic, ecological, and social systems. *Ecosystems*, *4*(5), 390–405. https://doi.org/10.1007/s10021-001-0101-5

Holling, C. S. . (1992). Cross-Scale Morphology , Geometry , and Dynamics of Ecosystems. *Ecological Monographs*, *62*(4), 447–502.

Hollnagel, E. (2006). Resilience – the Challenge of the Unstable. In *Resilience Engineering: Concepts and Precepts* (pp. 9–19). Ashgate Publishing Ltd.

Hossain, N. U. I., Rahman, S., & Liza, S. A. (2023). Cyber-susiliency index: A comprehensive resiliency-sustainability-cybersecurity index for healthcare supply chain networks. *Decision Analytics Journal*, *9*(April), 100319. https://doi.org/10.1016/j.dajour.2023.100319

Hosseini, S., Ivanov, D., & Dolgui, A. (2019). Review of quantitative methods for supply chain resilience analysis. *Transportation Research Part E: Logistics and Transportation Review*, *125*(December 2018), 285–307. https://doi.org/10.1016/j.tre.2019.03.001

Islam, M. M., Khan, M. I., & Barman, A. (2021). Impact of novel coronavirus pandemic on aquaculture and fisheries in developing countries and sustainable recovery plans: Case of Bangladesh. *Marine Policy*, *131*(September 2020), 104611. https://doi.org/10.1016/j.marpol.2021.104611

Ivanov, D., & Dolgui, A. (2021). A digital supply chain twin for managing the disruption risks and resilience in the era of Industry 4.0. *Production Planning and Control*, *32*(9), 775–788. https://doi.org/10.1080/09537287.2020.1768450

Ivanov, D., Dolgui, A., Sokolov, B., & Ivanova, M. (2022). Integrated simulation-optimization modeling framework of resilient design and planning of supply chain networks. *IFACPapersOnLine*, *55*(10), 2713–2718. https://doi.org/10.1016/j.ifacol.2022.10.121

Jayasinghe, N., Fernando, S., Haigh, R., Amaratunga, D., Fernando, N., Vithanage, C., Ratnayake, J., & Ranawana, C. (2022). Economic resilience in an era of 'systemic risk': Insights from four key economic sectors in Sri Lanka. *Progress in Disaster Science*, *14*(April), 100231. https://doi.org/10.1016/j.pdisas.2022.100231

Junaid, M., Zhang, Q., Cao, M., & Luqman, A. (2023). Nexus between technology enabled supply chain dynamic capabilities, integration, resilience, and sustainable performance: An empirical examination of healthcare organizations. *Technological Forecasting and Social Change*, *196*(July), 122828. https://doi.org/10.1016/j.techfore.2023.122828

Kamalahmadi, M., & Parast, M. M. (2016). A review of the literature on the principles of enterprise and supply chain resilience: Major findings and directions for future research. *International Journal of Production Economics*, *171*, 116–133. https://doi.org/10.1016/j.ijpe.2015.10.023

Kelling, I. et al. (2026) 'Beyond growth : Reshaping fisheries for a wellbeing economy', Marine Policy, 183(September 2025).

Kemp, P. S., Subbiah, G., Barnes, R., Boerder, K., O'Leary, B. C., Stewart, B. D., & Williams, C. (2023). The future of marine fisheries management and conservation in the United Kingdom: Lessons learnt from over 100 years of biased policy. *Marine Policy*, *147*(November 2022), 105075. https://doi.org/10.1016/j.marpol.2022.105075

Kobayashi, M. (2022). The COVID-19 impacts and challenges to achieving sustainability in Japan's fisheries and aquaculture. *Marine Policy*, *143*(June), 105161. https://doi.org/10.1016/j.marpol.2022.105161

Kundu, S. K., & Santhanam, H. (2021). All pain and no gain: Factors impacting local and regional sustainability due to COVID-19 pandemic with respect to the Indian marine fisheries. *Current Research in Environmental Sustainability*, *3*, 100086. https://doi.org/10.1016/j.crsust.2021.100086

Lim-Camacho, L., Jeanneret, T., & Hodgkinson, J. H. (2021). Towards resilient, responsive and rewarding mining: An adaptive value chains approach. *Resources Policy*, *74*(November 2017), 101465. https://doi.org/10.1016/j.resourpol.2019.101465

Liu, J., Wu, J., & Gong, Y. (2023a). Computers & Industrial Engineering Maritime supply chain resilience : From concept to practice. *Computers & Industrial Engineering*, *182*(June), 109366. https://doi.org/10.1016/j.cie.2023.109366

Liu, J., Wu, J., & Gong, Y. (2023b). Maritime supply chain resilience: From concept to practice. *Computers and Industrial Engineering*, *182*(June), 109366. https://doi.org/10.1016/j.cie.2023.109366

Liu, M., Ding, Y., Chu, F., Zheng, F., & Chu, C. (2022). Minimax Relative Regret Approach for Resilient Supply Chain Design. *IFAC-PapersOnLine*, *55*(10), 1465–1470. https://doi.org/10.1016/j.ifacol.2022.09.597

Lo, S. L. Y., How, B. S., Teng, S. Y., Lim, J. Y., Loy, A. C. M., Lam, H. L., & Sunarso, J. (2023). A novel hybrid method for constructing resilient microalgae supply chain: Integration of n-1 contingency analysis with stochastic modelling. *Journal of Cleaner Production*, *417*(May), 137939. https://doi.org/10.1016/j.jclepro.2023.137939

MacCarthy, B. L., Ahmed, W. A. H., & Demirel, G. (2022). Mapping the supply chain: Why, what and how? *International Journal of Production Economics*, *250*(October), 108688. https://doi.org/10.1016/j.ijpe.2022.108688

Mahmud, P., Ahmed, M., Janan, F., Xames, M. D., & Chowdhury, N. R. (2023). Strategies to develop a sustainable and resilient vaccine supply chain in the context of a developing economy. *SocioEconomic Planning Sciences*, *87*(PB), 101616. https://doi.org/10.1016/j.seps.2023.101616

Mahon, R., McConney, P., & Roy, R. N. (2008). Governing fisheries as complex adaptive systems. *Marine Policy*, *32*(1), 104–112. https://doi.org/10.1016/j.marpol.2007.04.011

Maltby, K. M., Kerin, S., & Mills, K. E. (2023). Barriers and enablers of climate adaptation in fisheries: Insights from Northeast US fishing communities. *Marine Policy*, *147*(September 2022), 105331. https://doi.org/10.1016/j.marpol.2022.105331

Marchessaux, G., Mangano, M. C., Bizzarri, S., M'Rabet, C., Principato, E., Lago, N., Veyssiere, D., Garrido, M., Scyphers, S. B., & Sarà, G. (2023). Invasive blue crabs and small-scale fisheries in the Mediterranean sea: Local ecological knowledge, impacts and future management. *Marine Policy*, *148*(March 2022). https://doi.org/10.1016/j.marpol.2022.105461

Martin-Breen, P., & Anderies, J. M. (2011). Resilience: A Literature Review. In *The Bellagio initiatives* (Issue Novermber). https://doi.org/10.1007/BF00537243

Mendenhall, E., Hendrix, C., Nyman, E., Roberts, P. M., Hoopes, J. R., Watson, J. R., Lam, V. W. Y., & Sumaila, U. R. (2020). Climate change increases the risk of fisheries conflict. *Marine Policy*, *117*(March), 103954. https://doi.org/10.1016/j.marpol.2020.103954

Moadab, A., Kordi, G., Paydar, M. M., Divsalar, A., & Hajiaghaei-Keshteli, M. (2023). Designing a sustainable-resilient-responsive supply chain network considering uncertainty in the COVID-19 era. *Expert Systems with Applications*, *227*(May), 120334. https://doi.org/10.1016/j.eswa.2023.120334

Mohammed, A., Zubairu, N., Yazdani, M., Diabat, A., & Li, X. (2023). Resilient supply chain network design without lagging sustainability responsibilities. *Applied Soft Computing*, *140*, 110225. https://doi.org/10.1016/j.asoc.2023.110225

Nagurney, A. (2021). Optimization of supply chain networks with inclusion of labor: Applications to COVID-19 pandemic disruptions. *International Journal of Production Economics*, *235*(February). https://doi.org/10.1016/j.ijpe.2021.108080

Nayeri, S., Khoei, M. A., Rouhani-Tazangi, M. R., GhanavatiNejad, M., Rahmani, M., & Tirkolaee, E. B. (2023). A data-driven model for sustainable and resilient supplier selection and order allocation problem in a responsive supply chain: A case study of healthcare system. *Engineering Applications of Artificial Intelligence*, *124*(May), 106511. https://doi.org/10.1016/j.engappai.2023.106511

Nayeri, S., Sazvar, Z., & Heydari, J. (2022). A global-responsive supply chain considering sustainability and resiliency: Application in the medical devices industry. *Socio-Economic Planning Sciences*, *82*(PB), 101303. https://doi.org/10.1016/j.seps.2022.101303

Nazari-Shirkouhi, S., Tavakoli, M., Govindan, K., & Mousakhani, S. (2023). A hybrid approach using Z-number DEA model and Artificial Neural Network for Resilient supplier Selection. *Expert Systems with Applications*, *222*(February), 119746. https://doi.org/10.1016/j.eswa.2023.119746

Nikookar, E., Gligor, D., & Russo, I. (2024). Supply chain resilience: When the recipe is more important than the ingredients for managing supply chain disruptions. *International Journal of Production Economics*, *272*(October 2023), 109236. https://doi.org/10.1016/j.ijpe.2024.109236

Nyiawung, R. A., Ayilu, R. K., Suh, N. N., Ngwang, N. N., Varnie, F., & Loring, P. A. (2022). COVID-19 and small-scale fisheries in Africa: Impacts on livelihoods and the fish value chain in Cameroon and Liberia. *Marine Policy*, *141*(January 2021), 105104. https://doi.org/10.1016/j.marpol.2022.105104

Olfati, M., & Paydar, M. M. (2023). Towards a responsive-sustainable-resilient tea supply chain network design under uncertainty using big data. *Socio-Economic Planning Sciences*, *88*(January). https://doi.org/10.1016/j.seps.2023.101646

Orengo Serra, K. L., & Sanchez-Jauregui, M. (2021). Food supply chain resilience model for critical infrastructure collapses due to natural disasters. *British Food Journal*, *124*(13), 14–34. https://doi.org/10.1108/BFJ-11-2020-1066

Owusu, V., & Adjei, M. (2021). Politics, power and unequal access to fisheries subsidies among small-scale coastal fisherfolk in Ghana. *Ocean and Coastal Management*, *214*(September), 105920. https://doi.org/10.1016/j.ocecoaman.2021.105920

Patidar, A., Sharma, M., Agrawal, R., & Sangwan, K. S. (2023). Antecedents of a Resilient Sustainable Supply Chain. *Procedia CIRP*, *116*, 558–563. https://doi.org/10.1016/j.procir.2023.02.094

Ponomarov, S. Y., & Holcomb, M. C. (2009). Understanding the concept of supply chain resilience. *The International Journal of Logistics Management*, *20*(1), 124–143. https://doi.org/10.1108/09574090910954873

Punzo, G., Tewari, A., Butans, E., Vasile, M., Purvis, A., Mayfield, M., & Varga, L. (2020). Engineering Resilient Complex Systems: The Necessary Shift Toward Complexity Science. *IEEE Systems Journal*, *14*(3), 3865–3874. https://doi.org/10.1109/JSYST.2019.2958829

Rabbani, M., Mohammad Hadji Molana, S., Mojtaba Sajadi, S., & Hossein Davoodi, M. (2022). Sustainable fertilizer supply chain network design using evolutionary-based resilient robust stochastic programming. *Computers and Industrial Engineering*, *174*(November), 108770. https://doi.org/10.1016/j.cie.2022.108770

Salehi, S., Zare Mehrjerdi, Y., Sadegheih, A., & Hosseini-Nasab, H. (2022). Designing a resilient and sustainable biomass supply chain network through the optimization approach under uncertainty and the disruption. *Journal of Cleaner Production*, *359*(January), 131741. https://doi.org/10.1016/j.jclepro.2022.131741

Scheffer, M., Carpenter, S., Foley, J. A., Folke, C., & Walker, B. (2001). Catastrophic shifts in ecosystems. *Nature*, *413*(6856), 591–596. https://doi.org/10.1038/35098000

Scheffer, M., Carpenter, S., & Young, B. De. (2005). Cascading effects of overfishing marine systems. *Trends in Ecology and Evolution*, *20*(11), 579–581. https://doi.org/10.1016/j.tree.2005.08.007

Schoenherr, T., Mena, C., Vakil, B., & Choi, T. Y. (2023). Creating resilient supply chains through a culture of measuring. *Journal of Purchasing and Supply Management*, *February*, 100824. https://doi.org/10.1016/j.pursup.2023.100824

Schulze, P. (1996). Engineering Within Ecological Constraints. In *Engineering Within Ecological Constraints*. The National Academies Press. https://doi.org/10.17226/4919

Shi, J., Chen, J., Xu, L., Di, Z., & Qu, Q. (2022). Improving the resilience of maritime supply chains : The integration of ports and inland transporters in duopoly markets. *Frontiers of Engineering Management*, 1–16.

Shokouhifar, M., & Ranjbarimesan, M. (2022). Multivariate time-series blood donation/demand forecasting for resilient supply chain management during COVID-19 pandemic. *Cleaner Logistics and Supply Chain*, *5*(July), 100078. https://doi.org/10.1016/j.clscn.2022.100078

Simard, N. S. M., Militz, T. A., Kinch, J., & Southgate, P. C. (2022). Shocks within a Pacific island fishery: A historic study of events impacting the mother-of-pearl fishery in Papua New Guinea. *Marine Policy*, *143*(April), 105173. https://doi.org/10.1016/j.marpol.2022.105173

Singh, G., Rajesh, R., Daultani, Y., & Misra, S. C. (2023). Resilience and sustainability enhancements in food supply chains using Digital Twin technology: A grey causal modelling (GCM) approach. *Computers and Industrial Engineering*, *179*(March). https://doi.org/10.1016/j.cie.2023.109172

Soares, J. B., da Costa, M. R., Monteiro-Neto, C., Loto, L., de Abreu, M. D., & Tubino, R. de A. (2022). Impacts of COVID-19 on the value chain of a small-scale fishery system in a tropical metropolitan city. *Marine Policy*, *140*(November 2021). https://doi.org/10.1016/j.marpol.2022.105068

Stoll, J. S., Pinto da Silva, P., Olson, J., & Benjamin, S. (2015). Expanding the "geography" of resilience in fisheries by bringing focus to seafood distribution systems. *Ocean and Coastal Management*, *116*, 185–192. https://doi.org/10.1016/j.ocecoaman.2015.07.019

Sugimoto, A., Roman, R., Hori, J., Tamura, N., Watari, S., & Makino, M. (2022). How has the "customary nature" of Japanese fisheries reacted to Covid-19? An interdisciplinary study examining the impacts of the pandemic in 2020. *Marine Policy*, *138*(February), 105005. https://doi.org/10.1016/j.marpol.2022.105005

Talloni-Álvarez, N. E., Sumaila, R. U., Le Billon, P., & Cheung, W. W. L. (2019). Climate change impact on Canada's Pacific marine ecosystem: The current state of knowledge. *Marine Policy*, *104*(September 2018), 163–176. https://doi.org/10.1016/j.marpol.2019.02.035

Thompson, B. S., & Rust, S. (2023). Blocking blockchain: Examining the social, cultural, and institutional factors causing innovation resistance to digital technology in seafood supply chains. *Technology in Society*, *73*(March), 102235. https://doi.org/10.1016/j.techsoc.2023.102235

Tirkolaee, E. B., Torkayesh, A. E., Tavana, M., Goli, A., Simic, V., & Ding, W. (2023). An integrated decision support framework for resilient vaccine supply chain network design. *Engineering Applications of Artificial Intelligence*, *126*(PB), 106945. https://doi.org/10.1016/j.engappai.2023.106945

Tukamuhabwa, B. R., Stevenson, M., Busby, J., & Zorzini, M. (2015). Supply chain resilience: Definition, review and theoretical foundations for further study. *International Journal of Production Research*, *53*(18), 5592–5623. https://doi.org/10.1080/00207543.2015.1037934

Vali-Siar, M. M., & Roghanian, E. (2022). Sustainable, resilient and responsive mixed supply chain network design under hybrid uncertainty with considering COVID-19 pandemic disruption. *Sustainable Production and Consumption*, *30*, 278–300. https://doi.org/10.1016/j.spc.2021.12.003

Vergara-Solana, F., Peñalosa-Martinell, D., Skerritt, D., Mejaes, A., Ponce-Diaz, G., Aranceta-Garza, F., González-Laxe, F., Seijo, J. C., & Sumaila, U. R. (2022). Volatility and vulnerability in Mexican fisheries and aquaculture: Enhancing resilience via public policy. *Marine Policy*, *136*(November 2021). https://doi.org/10.1016/j.marpol.2021.104888

Vergara, J. I. T., Martínez, J. A. S., & Salais-Fierro, T. E. (2023). Performance measurement of a Resilient-Sustainable Supply Chain through fuzzy multi-criteria techniques. *Computers and Industrial Engineering*, *177*(January), 109059. https://doi.org/10.1016/j.cie.2023.109059

Vimal, K. E. K., Kumar, A., Sunil, S. M., Suresh, G., Sanjeev, N., & Kandasamy, J. (2022). Analysing the challenges in building resilient net zero carbon supply chains using Influential Network Relationship Mapping. *Journal of Cleaner Production*, *379*(P2), 134635. https://doi.org/10.1016/j.jclepro.2022.134635

Walker, B., & Salt, D. (2006). *Resilience Thinking: Sustaining Ecosystem and People in a Changing World*.

Wang, J., Zhou, H., & Zhao, Y. (2022). Behavior evolution of supply chain networks under disruption risk — From aspects of time dynamic and spatial feature. *Chaos, Solitons and Fractals*, *158*, 112073. https://doi.org/10.1016/j.chaos.2022.112073

Withouck, I., Tett, P., Doran, J., Mouat, B., & Shucksmith, R. (2023). Diving into a just transition: How are fisheries considered during the emergence of renewable energy production in Scottish waters? *Energy Research and Social Science*, *101*(May), 103135. https://doi.org/10.1016/j.erss.2023.103135

Woods, D. D. (2015). Four concepts for resilience and the implications for the future of resilience engineering. *Reliability Engineering and System Safety*, *141*, 5–9. https://doi.org/10.1016/j.ress.2015.03.018

Yazdani, M., Torkayesh, A. E., Chatterjee, P., Fallahpour, A., Montero-Simo, M. J., Araque-Padilla, R. A., & Wong, K. Y. (2022). A fuzzy group decision-making model to measure resiliency in a food supply chain: A case study in Spain. *Socio-Economic Planning Sciences*, *82*(PB), 101257. https://doi.org/10.1016/j.seps.2022.101257

Ynacay-Nye, A., Hisano, S., Suryawan, A. S., Wilson, J. R., Bradley, D., Phipps, K., Gleason, M. G., Tukana, M., Prince, J., Glaus, K. B. J., Marama, K., Whippy-morris, C., Tinlin-Mackenzie, A., Rowland, B. W., Delany, J., Scott, C. L., Fitzsimmons, C., Tai, T. C., Steiner, N. S., … Alhashim, J. (2022). Shocks within a Pacific island fishery: A historic study of events impacting the mother-of-pearl fishery in Papua New Guinea. *Marine Policy*, *143*(April), 105173. https://doi.org/10.1016/j.marpol.2022.105173

Zeng, L., Liu, S. Q., Kozan, E., Burdett, R., Masoud, M., & Chung, S. H. (2023). Designing a resilient and green coal supply chain network under facility disruption and demand volatility. *Computers and Industrial Engineering*, *183*(July), 109476. https://doi.org/10.1016/j.cie.2023.109476