

The Blue Economy in Ghana: Industrialisation, Contestation and Impacts on Small-Scale Fisheries

by **Raymond Kwojori Ayilu**

Thesis submitted in fulfilment of the requirements for
the degree of

Doctor of Philosophy

under the supervision of Assoc. Prof. Michael Fabinyi and Prof.
Kate Barclay

University of Technology Sydney
Faculty of Arts and Social Sciences

June 2023

Certificate of original authorship

I, Raymond Kwojori Ayilu, declare that this thesis, is submitted in fulfilment of the requirements for the award of Doctor of Philosophy, in the Faculty of Arts and Social Sciences at the University of Technology Sydney.

This thesis is wholly my own work unless otherwise referenced or acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

This document has not been submitted for qualifications at any other academic institution.

This research is supported by the Australian Government Research Training Program.

Production Note:

Signature: Signature removed prior to publication.

Date: 20th June 2023

Acknowledgement

First and foremost, I want to thank God for helping me complete my PhD.

I successfully completed this thesis because of the contributions of individuals and organisations that played crucial roles.

I owe a tremendous debt of gratitude to my excellent supervisors, Associate Professor Michael Fabinyi, who served as my PhD's principal advisor, and Professor Kate Barclay, who served as co-supervisor. Thank you both for your outstanding guidance, advice, insight, and availability throughout this PhD. Your work ethics, commitment to the project, expertise, and belief in me is the source of energy that saw me through this journey. Michael, you were always present, especially during the Covid-19 pandemic, you stepped in just at the right time, offering me the necessary encouragement and providing top-up funds, which enabled me to complete my data collection. In essence, you gave me more than PhD supervision; instead, with your love, care, and commitment to my growth, you recreated my entire PhD experience. This work is the beginning of more incredible things to come, so continue to keep me under your mentorship as a collaborator and friend. If I ever come to supervise or mentor doctoral students, I will hold your approach as the reference standard for graduate supervision.

I also wish to acknowledge the following academics for their different roles. I want to thank Dr Dirk J. Steenbergen (University of Wollongong), Dr Andrew Song, and Dr Annie Young Song (University of Technology Sydney) for serving as panel members at different stages of my PhD assessment and providing valuable feedback on my research. Thank you to Dr Terry Fitzgerald for the expert editing and proofreading of the empirical chapters of this thesis. I also wish to acknowledge the assistance and instrumental support of my Research Assistant, Mrs Mary Ama Bawa, for the role she played during the field data collection and transcription.

I couldn't have accomplished this research without the fishers, processors, NGOs and institutions, whom I cannot name because of ethical considerations. Thank you for sharing your stories and experiences, letting us into your workplaces, and providing us with a greater understanding of your communities.

Thank you to my wonderful friends; Dr Emmanuel Tenakwah (Snr), Dr Emmanuel Tenakwah (Jnr), Samuel Anuga, Richard Nyiawung, Isaac Akomea-Frimpong and Bright Opoku Ahenkora. You kept me grounded and inspired me that there is always a solution. I want to express gratitude

to my lovely HDR friends at FASS, who occasionally assisted and clarified some of the HDR paperwork and procedures.

My entire family has been substantial, and I am blessed to have you there to hold me up in prayer.

Lastly, and importantly, thank you, my lovely wife and cheerleader (Pascalina) for walking alongside me with incredible support, patience and thoughtfulness. I love you dearly.

Statement of thesis format

This thesis is submitted as a thesis by compilation according to the format of the University of Technology Sydney. The University of Technology Sydney thesis by compilation is structured as a single manuscript comprising a combination of chapters, including a mixture of published and unpublished works. Six chapters make up the thesis, including publications: an introduction (chapter 1), a literature review (chapter 2), three empirical chapters based on fieldwork in Ghana (chapters 3 - 5), and a discussion and conclusion (chapter 6). It is important to note that readers may encounter some minor repetition, particularly in the methods sections of chapters 3-5 and the introduction, where I situate the paper within the blue economy. This is because each journal requires a description of the methods sections. In agreement with my supervising team, I decided on a thesis by compilation to gain the core skills required to write academic publications and to strategically place me to start my academic career with journal articles after completion. This strategy is advantageous because I profited from each journal's anonymous peer review procedures. Each empirical chapter provides an abstract in line with the thesis by compilation approach. In addition, the List of Figures and Tables are organised per chapter rather than as a comprehensive list from the introduction to the conclusion of the thesis.

List of publications included

Chapter 2

Title: *Small-scale fisheries in the blue economy: Review of scholarly papers and multilateral documents*

Author: Raymond Ayilu, Michael Fabinyi, & Kate Barclay

Journal: *Ocean & Coastal Management*

Status: Published February 2022

Chapter 3

Title: *Industrial and small-scale fisheries relations in Ghana: A political ecology perspective on marine fisheries exclusion*

Author: Raymond Ayilu, Michael Fabinyi, Kate Barclay & Mary Ama Bawa

Journal: *Journal of Rural Studies*

Status: Revised and resubmitted (24 May 2023)

Chapter 4

Title: *Blue economy: Industrialisation and coastal fishing livelihoods in Ghana*

Author: Raymond Ayilu, Michael Fabinyi, Kate Barclay & Mary Ama Bawa

Journal: *Reviews in Fish Biology and Fisheries*

Status: Published January 2023

Chapter 5

Title: *Limits to blue economy: Challenges to accessing fishing livelihoods in Ghana's port communities*

Author: Raymond Ayilu

Journal: *Maritime Studies*

Status: Published April 2023

Statement of contribution of authors

Study 1 - Chapter 2

Title: Small-scale fisheries in the blue economy: Review of scholarly papers and multilateral documents (published).

Publication Reference: Ayilu, R. K., Fabinyi, M., & Barclay, K. (2022). Small-scale fisheries in the blue economy: Review of scholarly papers and multilateral documents. *Ocean & Coastal Management*, 216, 105982. <https://doi.org/10.1016/j.ocecoaman.2021.105982>

Contributors: Raymond Ayilu (RA), Michael Fabinyi (MF), Kate Barclay (KB)

RA developed the study design and wrote the first draft under the supervision of, and in consultation with MF and KB. Data analysis and data interpretation were performed by RA, and MF and KB provided critical revisions.

Study 2 - Chapter 3

Title: Industrial and small-scale fisheries relations in Ghana: A political ecology perspective on marine fisheries exclusion. *Journal of Rural Studies* (Revised and resubmitted)

Contributors: Raymond Ayilu (RA), Michael Fabinyi (MF), Kate Barclay (KB), Mary Ama Bawa (MAB)

RA developed the study design under the supervision of MF and KB. RA, obtained ethical approval and wrote the first draft of the chapter. MF and KB contributed to the development of the study concept. RA and MAB conducted the field data collection. Data analysis and data interpretation were performed by RA, and MF and KB provided critical revisions.

Study 3 - Chapter 4

Title: Blue economy: Industrialisation and coastal fishing livelihoods in Ghana (published).

Publication Reference: Ayilu, R. K., Fabinyi, M., Barclay, K., & Bawa, M. A. (2023). Blue economy: industrialisation and coastal fishing livelihoods in Ghana. *Reviews in Fish Biology and Fisheries*. <https://doi.org/10.1007/s11160-022-09749-0>

Contributors: Raymond Ayilu (RA), Michael Fabinyi (MF), Kate Barclay (KB), Mary Ama Bawa (MAB)

RA developed the study design under the supervision of MF and KB. RA, obtained ethical approval and wrote the first draft of the chapter. MF and KB contributed to the development of the study concept. RA and MAB conducted the field data collection. Data analysis and data interpretation were performed by RA, and MF and KB provided critical revisions.

Study 4 - Chapter 5

Title: Limits to blue economy: Challenges to accessing fishing livelihoods in Ghana's port communities. *Maritime Studies* (published)

Publication Reference: Ayilu, R. K. (2023). Limits to blue economy: challenges to accessing fishing livelihoods in Ghana's port communities. *Maritime Studies*, 22(2), 11.
<https://doi.org/10.1007/s40152-023-00302-8>

Contributor: Raymond Ayilu (RA)

RA developed the study design, obtained ethical approval, and wrote the first draft. RA conducted the field data collection assisted by MAB. Data analysis and data interpretation were performed by RA. MF and KB supervised the research.

Preface

This thesis investigates the relationship between small-scale fishing and the blue economy in Ghana, with each chapter examining this relationship from a different perspective. The first section of the thesis provided a global review of the framing of small-scale fisheries within the blue economy (chapter 2). The second part of the thesis constitutes the empirical section, which explored small-scale fishing livelihoods using various case studies (chapters 3, 4, and 5) from two blue economy sectors in Ghana. Chapters 3 and 4 analyse the relationships between industrial fishing and small-scale fishing, illustrating how Ghana's history of fisheries industrialisation has disrupted traditional fishing value chains and marginalised coastal fishing livelihoods. Chapter 5 discusses coastal developments (i.e. port development, activities, and operations) to discuss the difficulties small-scale fishers in port communities face in sustaining their traditional coastal fishing livelihoods. In chapter 6, I discuss the economic, social, and political problems faced by small-scale fishing actors in the blue economy, organised according to three key findings: *i) dominant blue economy narratives downplay small-scale fisheries, ii) industrialisation in maritime fishing threatens coastal fishing livelihoods and iii) local fishing communities are disadvantaged in coastal development.*

Table of Contents

Certificate of original authorship	i
Acknowledgement	ii
Statement of thesis format	iv
List of publications included	v
Statement of contribution of authors	vi
Preface	viii
List of figures	xiii
List of tables	xiv
List of acronyms	xv
Abstract	1
Chapter 1	3
Introduction	3
1.1 Background to the study.....	3
1.2 Situating the research	6
1.3 Research objectives	8
1.4 Theoretical frameworks.....	9
1.4.1 Political ecology.....	9
1.4.2 Integrating the sustainable livelihoods approach (SLA)	11
1.5 Research methodology	11
1.5.1 Research design and method	11
1.5.2 Positionality.....	12
1.5.3 Case studies	13
1.5.4 Selection of country, communities and participants	15
1.5.5 COVID - 19 statement.....	15
1.5.6 Data collection and analysis	16
1.5.7 Research ethics.....	18
1.5.8 Navigating the fishing communities.....	19
1.6 Ghana as a case study.....	23
1.7 Ghana in context	25
1.7.1 Economy and development	25
1.7.2 Social and political governance.....	27
1.8 Fishery development and governance	28
1.8.1 Importance of marine capture fisheries	28
1.8.2 Ghana fisheries governance	29
1.8.3 Fisheries conservation and management.....	29
1.9 Structure of the thesis	31
1.10 Research limitations	31
References	33

Chapter 2	42
Small-Scale Fisheries in the Blue Economy: Review of Scholarly Papers and Multilateral Documents	42
Abstract	42
2.1. Introduction.....	43
2.2 Materials and methods	45
2.2.1 Search strategy/inclusion and exclusion criteria	46
2.2.2 Search results selection and analysis.....	47
2.3 Review findings	51
2.3.1 Background of the reviewed scholarly papers	51
2.3.2 Framing small-scale fisheries in the blue economy by some academic scholars.....	52
2.3.2.1 Small-scale fisheries as driver of innovation	52
2.3.2.2 Small-scale fisheries at the center of economic and political discourse.....	53
2.3.3 Framing small-scale fisheries in the blue economy by multilateral and intergovernmental organisations	55
2.4 Discussion	62
2.4.1 Implications of various blue economy ideological positions for small-scale fisheries	62
2.4.2 Small-scale fisheries' social aspects and uniqueness in the blue economy	64
2.5 Conclusion.....	66
2.5.1 Acknowledgement.....	67
2.5.2 Ethics approval and consent to participate	67
2.5.3 Funding	67
References	68
Chapter 3	75
Industrial and Small-Scale Fisheries Relations in Ghana: A Political Ecology Perspective on Marine Fisheries Exclusion	75
Abstract	75
3.1 Introduction.....	76
3.2 Exclusionary powers in marine resources	77
3.3 Method and materials	79
3.3.1 Study sites	79
3.3.2 Data collection.....	82
3.3.3 Data analysis	83
3.3.4 Limitations	84
3.4 Results and Discussion.....	84
3.4.1 Regulation	85
3.4.1.1 Contradictory Regulations.....	86
3.4.2 Fuzzy boundaries.....	87
3.4.3 Legitimation	89
3.4.3.1 China aid and dominance	90

3.4.4 Force.....	91
3.4.5 Market power	93
3.4.5 Summary of research findings.....	94
3.5 Conclusion.....	95
3.5.1 Ethics declarations.....	96
3.5.2 Funding	96
3.5.3 CRediT	96
3.5.4 Competing interest	96
3.6.5 Data availability statement	96
References	97
Chapter 4.....	105
Blue economy: Industrialisation and Coastal Fishing Livelihoods in Ghana.....	105
Abstract	105
4.1 Introduction	106
4.2 Methods and materials	109
4.2.1 Ghana's industrial fishing transformation.....	109
4.2.2 Study areas	112
4.2.3 Data collection.....	114
4.2.4 Data analysis	116
4.3.5 Limitations	118
4.4 Results and discussion.....	118
4.4.1 Economic (financial and physical) assets.....	118
4.4.1.1 Income and livelihood.....	118
4.4.1.2 Fish trading and processing.....	119
4.4.2 Social assets	121
4.4.2.1 Social exclusion and disconnection.....	121
4.4.2.2 Conflict and social cohesion.....	123
4.4.2.3 Heritage, traditions and norms	123
4.4.2.4 Women's identity and prestige - 'a good wife'.....	124
4.4.3 Natural assets	126
4.4.3.1 Ecological damage and fishing capacity	126
4.5 Conclusion.....	127
4.5.1 Ethics Declarations.....	128
4.5.2 CRediT	128
4.5.3 Competing interest	128
4.5.4 Data availability statement	128
4.5.5 Funding	128
References	129
Chapter 5.....	138

Limits to Blue Economy: Challenges to Accessing Fishing Livelihoods in Ghana's Port Communities	138
Abstract	138
5.1 Introduction	139
5.2 Accumulation by securitisation and dispossession	141
5.3 Methods and materials	143
5.3.1 Study area	143
5.3.2 Data collection	145
5.3.3 Data analysis	147
5.4 Research findings	147
5.4.1 Case Study 1: the Jamestown fishing harbour complex	147
Displacement of small-scale fishing actors	149
5.4.2 Case Study 2: the ports of Sekondi-Takoradi and Tema	151
Securitisation and port expansion	153
5.5 Discussion and conclusion	157
5.5.1 Ethics declarations	162
5.5.2 Data availability statement	162
5.5.3 Competing interest	162
5.5.4 Funding	162
References	163
Chapter 6	172
Discussion and Conclusion	172
6.1 Introduction	172
6.2 Dominant blue economy narratives downplay small-scale fisheries	173
6.3 Industrialisation in maritime fishing threatens coastal fishing livelihoods	174
6.4 Local fishing communities disadvantaged in coastal development	176
6.5 Summary conclusion	178
6.6 Contributions and recommendations	179
6.6.1 Theoretical contributions	179
6.6.2 Empirical contributions	180
6.6.3 Recommendations	181
6.6.3.1 Global level	181
6.6.3.2 National level in Ghana	182
6.6.3.3 Recommendations for fishers on how they might endeavour to respond	183
6.7 Implications for further research	183
Reference	185
APPENDICES	190

List of figures

Chapter 1

Figure 1. 1: Excerpt from a letter to the Ghanaian Minister of Fisheries from ten civil society, non-governmental organisation, and small-scale fishing groups.....	14
Figure 1. 2: Empty fish-drying mesh wire sits idle because women lacked enough catch to smoke in one of the coastal fishing communities	20
Figure 1. 3: A local chief fisher arbitrates a dispute between a fisherman and a processor involving cheating	21
Figure 1. 4: [a] - Neighbourhood roadway that provides access to one of the fishing communities in the area; [b] - The major drainage that runs through one of the fishing communities	22
Figure 1. 5: A Facebook post by the Vice President of Ghana describing the country's commitment to the blue economy ahead of the 2019 national fisheries conference.	25

Chapter 2

Figure 2. 1: Trend in annual journal publications on the Blue Economy and Small-scale fisheries (Note: See section 2.1 for the search strategy)	45
Figure 2. 2: The searching and screening process; adapted PRISMA extension for scoping reviews flow diagram.....	47
Figure 2. 3: Research methods and approaches	52

Chapter 3

Figure 3. 1 : Map showing the study communities	81
Figure 3. 2: Ghana's six (6) and twelve (12) nautical mile Inshore Exclusive Zones, as well as its 30 metre depth (Red - 6 nautical miles: Green -12 nautical miles: Deep blue - 30 metres depth contour)	89
Figure 3. 3: Powers of exclusion in Ghanaian fisheries	95

Chapter 4

Figure 4. 1: Graph showing the average landings of small pelagic stocks (red line) and fishing effort (number of canoes) (blue bars) from 1990 to 2016.....	112
Figure 4. 2: Map of the Western Region and Greater Accra Region of Ghana, with the studied communities indicated with dots.....	113

Chapter 5

5. 1: Map showing the location of study communities.....	144
5. 2 Images showing construction work in progress at the proposed Jamestown Fishing Harbour Complex and artistic impressions of billboards around the construction site.....	148
5. 3: The President of Ghana, Nana Akuffo Addo (middle of first row), in 2022 commissioning four operational ships for the combating of illegal maritime activities	153

List of tables

Chapter 2

Table 2. 1: Final scholarly journal articles considered for analysis	48
Table 2. 2: List of web retrieved policy documents and sources	50
Table 2. 3: Summary of selected blue economy narratives from policy documents.....	59

Chapter 3

Table 3. 1: Characteristics of the study locations.....	80
---	----

Chapter 4

Table 4. 1: Characteristics of the study communities and districts.....	114
---	-----

Chapter 5

Table 5. 1: Selected characteristics of the study locations	144
---	-----

List of acronyms

AfCFTA:	African Continental Free Trade Area
AfDB:	African Development Bank
AMA:	Accra Metropolitan Assembly
AU:	African Union
AU-IBAR:	African Union Inter-African Bureau for Animal Resources
CODA:	Coastal Development Authority
CSO:	Civil Society Organisations
DfID:	Department for International Development
EEZ:	Exclusive Economic Zone
EIB:	European Investment Bank
EJF:	Environmental Justice Foundation
EU:	European Union
FAO:	Food and Agriculture Organization
FAOCA:	FAO Compliance Agreement
FCWC:	Fisheries Committee for the West Gulf of Guinea
FEU:	Fisheries Enforcement Unit
FFA:	Pacific Fisheries Forum Agency
FGD:	Focus Group Discussions
FSSD:	Fisheries Scientific Survey Division
GDP:	Gross Domestic Product
GNA:	Ghana News Agency
GNCFC:	Ghana National Canoe Fishermen Council
GNI:	Gross National Income
GPHA:	Ghana Port and Harbor Authority
GSS:	Ghana Statistical Services
GTA:	Ghana Industrial Trawlers Association
IEZ:	Inshore Exclusive Zone
IMF:	International Monetary Fund
IMO:	International Maritime Organisation

IPBES:	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services
ISMI:	Interregional Maritime Security Institute
ISPS:	International Ship and Port Facility Security Code
IUCN:	International Union for Conservation of Nature
IUU:	Illegal Unregulated and Unreported Fishing
IWC:	International Whaling Commission
JICA:	Japan International Cooperation Agency
JV:	Joint Ventures
KII:	Key Informant Interview
LMIC:	Lower Middle Income Country
MoFAD:	Ministry of Fisheries and Aquaculture Development
MPAs:	Marine Protected Areas
MSP:	Marine Spatial Planning
NAFPT:	National Association of Fish Processors and Traders
NDC:	National Democratic Congress
NDPC:	National Development Planning Commission
NGO:	Non-Governmental Organisation
NPP:	New Patriotic Party
OECD:	Organisation for Economic Co-operation and Development
PEMSEA:	Partnerships in Environmental Management for the Seas of East Asia
PES:	Payment for Ecosystem Services
PIDF:	Pacific Islands Development Forum
PRISMA:	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
PSIDS:	Pacific Small Island Developing States
PSMA:	Port State Measures Agreement
RFMO:	Regional Fisheries Management Organisation
SAP:	Structural Adjustment Program
SDG:	Sustainable Development Goal
SFC:	State Fishing Corporation
SLA	Sustainable Livelihoods Approach
SIDS:	Small Island Developing States

TBTI:	Too Big To Ignore
UNCLOS:	United Nations Convention on the Law of the Sea
UNCTAD:	United Nations Conference on Trade and Development
UNECA:	United Nations Economic Commission for Africa
UNEP:	United Nations Environmental Programme
UNTOC:	United Nations Convention against Transnational Organised Crime
USAID:	United States Agency for International Development
VMS:	Vessel Monitoring System
WFF:	World Forum of Fish Harvesters & Fish Workers
WFFP:	World Forum of Fisher People
WIO:	Western Indian Ocean
WTO:	World Trade Organisation

Abstract

The 2012 United Nations Conference on Sustainable Development promoted the notion of the 'blue economy' for ocean governance and development, which supports economic growth, resource stewardship, social equity, and inclusiveness. Small-scale fisheries are vital to the ocean economy, but they are often obscured by competing interests in the blue economy. Recent research on small-scale fisheries in the blue economy focuses on equity and justice, with few empirical analyses on the connections and even less on the impact on small-scale fisheries value chains as a whole. This thesis examines the relationships between small-scale fishing and the blue economy in Ghana using political ecology and sustainable livelihood approaches. The thesis reviewed multilateral and academic works and interviewed small-scale fisheries actors, non-governmental organisations, and government officials in Ghana. Firstly, the research shows how global high-level strategic policy documents, geopolitical discussions, and negotiations frame the blue economy in a way that downplay small-scale fisheries. Secondly, the findings of the research demonstrate from the empirical data how blue economy aspirations for maritime fishing in Ghana promote industrial-scale fisheries in ways that marginalise small-scale fisheries value chains. Multiple assemblages of power that transcend the concerns of competition over scarce resources to encompass additional dimensions of active exclusion - such as law, politics, and social and economic organisation - enable industrial fisheries to access local coastal fisheries and penetrate local small-scale value chains in Ghana. Moreover, the findings show that industrial fishing has created overcapacity and a decline in fish stocks, ruined fishing gear, and weakened the market systems and value chain positions of small-scale processors and traders, thus impacting multiple dimensions of livelihoods. In addition, this has resulted in conflicts, social isolation, disconnection, and compromised women's social identity in fishing communities. Thirdly, the findings demonstrate that Ghana's coastal port developments exclude small-scale fishers, as small-scale fishing players faced major obstacles in gaining access to fishing livelihoods in the port communities. The findings show that the growth-oriented goals of port expansions and port security measures have restricted fishing communities' access to coastal fishing spaces and caused congestion in the canoe bays of Ghana's fishing harbours. In addition, the urbanisation around the ports has impacted fishers' ability to meet the rising cost of living in fishing communities with fishing incomes. The study shows how local authorities are in contention with fishers for coastal space in the ongoing new port development, labelling fishers as illegal squatters and regularly evicting them and demolishing their structures.

In conclusion, as small-scale fishing continues to be one of Ghana's most important sources of livelihood and income in most coastal communities, it is unclear whether the blue economy will create significant benefits for them, thus their future remains an open question. Policymakers must examine the linkages between specific blue economy initiatives and coastal livelihoods, as opposed to examining their economic benefits through total output (i.e. GDP). The thesis concludes with a set of recommendations aimed at ensuring inclusion and sustainability, outlining ways to optimise a more socially equitable form of blue economy governance.

Chapter 1

Introduction

1.1 Background to the study

Over the past several decades there have been an increasing number of global charters, pacts and coalitions concerned with sovereignty over oceans and marine resources. The International Maritime Organization (IMO) was established in 1958, paving the way for governing conventions on marine safety, maritime pollution, and shipping. Subsequently, the United Nations Convention on the Law of the Sea (UNCLOS) was adopted in 1982, and stands as a revolutionary reform in ocean and maritime governance, with the enclosure of a 200 nautical mile Exclusive Economic Zone (EEZ) for coastal states (Campling & Havice, 2014; Silver & Campbell, 2018). As global discourse has increasingly shifted towards international waters, in 2017 the UN General Assembly adopted a resolution to protect areas beyond national jurisdiction (Bennett, 2018).

At the same time, ocean and marine resource management has also transformed from government-centric and top-down to more participatory (Collier, 2020; Jentoft, 2014; Jentoft et al., 1998). In particular, the fisheries management literature is now inundated with concepts such as co-management, community-based fishery management, integrated coastal management, ecosystem-based fisheries management, and adaptive management. These management models, among other things, acknowledge the expertise of local resource users and encourage the participation of local people in natural resource governance (Collier, 2020; Jentoft et al., 1998).

The 'blue economy' model gained prominence as an ocean governance paradigm at the 2012 United Nations Conference on Sustainable Development (Rio+20) (Silver et al., 2015). The 2012 Rio meeting came 20 years after the landmark 1992 Rio Earth Summit, both of which trace their foundations to the Brundtland Commission's 'Our Common Future' report (Brundtland, 1987; UNEP, 2011). The blue economy concept had earlier been used by Gunter Pauli, in a much-publicised '*Blue Economy: 10 years - 100 innovations - 100 million jobs*' publication to advocate a new economic paradigm inspired by nature (Pauli, 2010). The blue economy aspirations include economic growth, environmental management, social equity and inclusiveness among others, created within governance and development paradigms such as marine spatial planning,

industrialisation and innovation (Voyer et al., 2018). In the blue economy discourse, there are different perspectives about how different sectors within the maritime sector (hereafter referred to as ocean economy) should be used (Barbesgaard, 2018). For example, while fish stocks are predicted to be reaching unsustainably fished levels, other economic sectors such as aquaculture, offshore oil and gas exploration, offshore wind farms, seabed mining, tourism, and various coastal developments such as ports and economic zones are regarded as underexploited. While there is much variation in blue economy narratives, in general there are proposals for industrialisation and commodification at the same time as proposals for environmental conservation and greater social equity, with all sides calling for innovation (Barbesgaard, 2018; Silver et al., 2015; Voyer et al., 2018).

Multilateral organisations, regional blocs, governmental and inter-governmental bodies, and the private sector have all become advocates, drafting policies and strategies to pursue the blue economy. Notably, the World Bank Group and the United Nations agencies, such as the Food and Agriculture Organization (FAO), United Nations Conference on Trade and Development (UNCTAD) and the United Nations Economic Commission for Africa (UNECA), are significant advocates for the blue economy (FAO, 2018; OECD, 2016; UNCTAD, 2014). Intergovernmental organisations and regional blocs, including the European Union (EU), the Organisation for Economic Co-operation and Development (OECD), the Pacific Islands Development Forum (PIDF), the African Union (AU), and the Partnerships in Environmental Management for the Seas of East Asia (PEMSEA) have also articulated the blue economy as a transformative economic growth and development framework (AU-IBAR, 2019; EU, 2020; PEMSEA, 2012). However, the diversity in conceptualisation and scope of these various blue economy policy documents show the concept lacks uniformity as different countries and regions have varying challenges, goals and aspirations (Brent et al., 2018; Cisneros-Montemayor et al., 2022; Silver et al., 2015; Voyer et al., 2022), as well as coordination and specific established guidelines (Bennett et al., 2019).

The blue economy has become a buzzword (Brent et al., 2018; Hadjimichael, 2018), and depending who uses it and how, it is regarded as a guiding principle, policy agenda, governance approach, narrative, or an economic ideology. Across the vast literature, the terms 'blue economy', 'blue growth' and 'ocean economy' have been used interchangeably. In this thesis, the blue economy and/or blue growth is defined as an economic frontier in ocean governance, co-

produced and co-created through economic growth and market-based tools to attain conservation objectives (e.g. commodification and natural capital accounting, marine spatial planning, and payments for ecosystem services) (Barbesgaard, 2018; McAfee, 2012; Voyer et al., 2018). The economic growth dimension emphasises economic expansion through ocean sectors in response to declining terrestrial resources. Commodification and valuation advocates quantification of the ecosystem services of the ocean environment (Voyer et al., 2018). Marine spatial planning encompasses the demarcation of permitted ownership and uses through zoning of the ocean environment (Hassan & Alam, 2019), while payment for ecosystem services (PES) aims to enable the trading of carbon credits for environmentally sustainable practices (McAfee, 2012). In addition, securitisation has been advocated as a way to secure a stable maritime environment for blue economy development and industries (Menzel, 2022). As a result, coastal and maritime spaces are rapidly becoming contested, shaping the livelihoods of coastal communities in the Global South (Okafor-Yarwood et al., 2020).

Small-scale fisheries are an important part of the ocean economy, contributing to food security and nutrition, employment, and to non-monetary dimensions such as self-identity, social networks, culture, and custom (Mills et al., 2011; Schorr, 2005; Teh & Sumaila, 2013). Notwithstanding the significant global contributions of small-scale fisheries, dominant narratives of the blue economy downplay and pay less attention to their social, economic, and livelihood aspects (Hadjimichael, 2018). Crucial dimensions of human wellbeing, such as inclusiveness, equity, social license, and livelihoods remain unresolved in the blue economy conversation and require special consideration and attention (Barbesgaard, 2018; Bennett et al., 2022; Bennett et al., 2019; Voyer et al., 2018). There have been many high-level commentaries on the blue economy (Bennett et al., 2022; Cisneros-Montemayor et al., 2022; Silver et al., 2015; Voyer et al., 2022), but less detailed examination of how small-scale fishing livelihoods are entangled in and potentially marginalised by the economic growth paradigms of the blue economy, especially in developing countries where small-scale fishing remains prominent.

A comprehensive definition of small-scale fisheries is not well-established in the literature (Gibson & Sumaila, 2017; Rousseau et al., 2019). The FAO and the Too Big To Ignore (TBTI) network of researchers engaged in small-scale fisheries have often suggested various common features to characterise them (FAO, 2014). Some of these suggested attributes include: 1) conducted within inshore area; 2) non-mechanized or involving low technology and capital

investment; 3) for cultural or ceremonial purposes linked with small-scale fisheries communities; 4) conducted solely by the fisher and/or family members; 5) significant proportion of catch is consumed by households of fishers. Others, such as the European Union, characterise small-scale fisheries based on boat size and gear used (Martín, 2012; Rousseau et al., 2019). Several terminologies are used interchangeably to refer to small-scale fisheries in different jurisdictions, including artisanal fisheries, coastal fisheries, inshore or nearshore fisheries, subsistence fisheries, recreational fisheries, traditional fisheries, and customary fisheries (Pauly, 2018; Rousseau et al., 2019; Smith & Basurto, 2019; Teh & Sumaila, 2013). This thesis employs the terminology of small-scale fisheries and uses the classification of marine fishing fleets in Ghana's Fisheries Management Plan (i.e. made of wood canoes - motorised and non-motorised), targeting sardinella, anchovy, and mackerels with gillnets, handlines, traps, and pots (Ministry of Fisheries and Aquaculture Development [MoFAD], 2015). In addition, the term 'small-scale fisheries livelihood' as used in the thesis encompasses the entire spectrum of the value chain, including traders and processors of the catch as well as gear used, and level of participation, including full-time, part-time and seasonal.

1.2 Situating the research

In the emerging blue economy developments and initiatives, balancing social dimensions with economic dimensions is crucial for inclusiveness, particularly for coastal small-scale fishing livelihoods. Economic growth aspirations through expanding industrialisation and large-scale developments present major challenges for small-scale fisheries to co-exist (Cohen et al., 2019). For instance, blue economy development paradigms have transitioned coastal resources and maritime spaces from local to global commons (Bennett et al., 2019). These paradigms are framed to galvanise and normalise investment into the ocean economy as a frontier for development, and to reinforce the interdependence between nature and the economy (Winder & Le Heron, 2017).

Blue economy developments are motivated by competitive economic growth, enhanced infrastructure, and promotion of market-oriented ocean and maritime initiatives (Barbesgaard, 2018; Brent et al., 2018; Hadjimichael, 2018). These multifaceted aspects of the blue economy hold significant implications for small scale fisheries. Coastal small-scale fisheries are different from other marine fisheries in terms of social-ecological and economic vulnerabilities, and how their ecological systems respond to different transitions, such as those promoted by the blue

economy. In addition, the political economy and social dimensions of fisheries in developing regions vary considerably from those occurring in developed regions. Small-scale fisheries in the Global South, for instance, are highly diverse and linked in closely with broader social, cultural and historical systems (Fabinyi et al., 2017; Pauly, 2018).

Small-scale fisheries are caught between the multiple competing interests in the blue economy. For example, the special volume by Jentoft et al. (2022), provides empirical studies highlighting some of blue economy competing interests that affect small-scale fisheries. However, large part of the emerging literature addressing small-scale fisheries has tended to concentrate on broad hypotheses rather than empirical dimensions of the blue economy interactions with small-scale fisheries in practice (Burgess et al., 2018; Cohen et al., 2019; Pauly, 2018). While the existing high-level academic research continues to strongly focus broadly on equity and justice issues within the blue economy (Bennett et al., 2022; Bennett et al., 2019; Bennett et al., 2018; Cisneros-Montemayor et al., 2019), there have been few detailed empirical examinations of how small-scale fishing is affected, and even fewer attempts to understand impacts on the value chain as a whole, and to explain how the blue economy is evolving in the Global South.

Multilateral organisations such as the EU and OECD concentrate on fisheries in general, including aquaculture and mariculture, and fail to mention small-scale fisheries in their blue economy documents (EU, 2020; OECD, 2016). These broad approaches to the blue economy are gaining momentum and present risks to small-scale fisheries by disregarding their importance, heterogeneity and distinctiveness (Klinger et al., 2018). Diverse conceptualisations of the blue economy neither differentiate between various groups dependent on marine resources nor provide sufficient context or specificity to their different attributes and livelihood considerations.

In Africa and in the group of Small Island Developing States (SIDS), as elsewhere, the idea of the blue economy has taken hold (Childs & Hicks, 2019; Dornan et al., 2018; Isaacs, 2019; Okafor-Yarwood et al., 2020; Silver et al., 2015). Developing countries are determined to harness ocean and coastal resources to propel their economic growth and support livelihoods (Andriamahefazafy & Kull, 2019). Some coastal economies have viewed their economies as larger once they have included the natural endowments of the blue economy sectors (Childs & Hicks, 2019), and have increased attempts to meet their economic growth aspirations. Many

countries have largely focused on economic themes and made assumptions about potential implications of the blue economy for economic growth, with less focus on coastal livelihoods. The blue economy paradigm in Africa encompasses not only the ocean sectors but also includes lakes and rivers, distinguishing it from the prevailing global usage where the concept is primarily associated with oceanic domains. This version of the concept in Africa recognises the continent's substantial freshwater resources.

The nuances of the blue economy, and the potentially multifaceted outcomes on small-scale fisheries, form the starting point of this thesis to empirically examine the blue economy in practice. Case studies on coastal small-scale fisheries provide the opportunity to assess the local economic, social and livelihood dimensions of the blue economy in developing coastal countries. The thesis examines cases in Ghana, which has one of the largest economies in West Africa. Ghana is a coastal nation with vast marine and freshwater resources, and there is growing recognition of the potential of these resources to drive economic growth opportunities in sectors including fisheries, aquaculture, tourism, transport, ports, coastal mining, and energy. The study contributes to the academic scholarship on the blue economy and provides recommendations for ensuring an inclusive and socially equitable blue economy. The thesis is positioned within the literature on blue justice (Bennett et al., 2021; Jentoft et al., 2022; Isaacs, 2019), with each chapter making a specific contribution. The study contributes to the literature by demonstrating that the dominant blue economy narratives downplay small-scale fisheries. In addition, contrary to the rhetoric of innovation to promote prosperity, the study shows that transformations in blue economy sectors undermine the livelihoods of small-scale coastal fisheries. For instance, the study demonstrates that blue economy for maritime fishing in Ghana is more about industrialisation than innovation, and that coastal port developments exclude small-scale fishers, making such developments less inclusive.

1.3 Research objectives

The overarching aim of this thesis is to examine how the blue economy unfolds in practice, and the impacts and outcomes on small-scale fisheries livelihoods. Using multiple case studies from Ghana, this thesis addresses the following specific research objectives:

- 1) Establish the narratives that frame small-scale fisheries within the blue economy.

- 2) Determine the relationship between maritime fishing industrialisation and coastal small-scale fisheries livelihoods.
- 3) Determine the impacts of coastal port developments on coastal small-scale fishing communities.

1.4 Theoretical frameworks

The thesis employs political ecology and sustainable livelihoods approaches, and in some instances integrates them. These bodies of literature are rooted in different disciplinary traditions - ecology and development policy in the case of the sustainable livelihoods approach, human geography and political economy for political ecology. Political ecology is useful in conceptualising the dynamics that mediate access to resources, but the analytical approach does not frequently offer in-depth analysis of the dimension of livelihoods (Owusu & Andriess, 2020). Therefore, I complemented this approach with the sustainable livelihoods approach, an important analytical tool for assessing multiple aspects of livelihood assets and outcomes (Bennett & Dearden, 2014; Owusu & Andriess, 2020). Integrating these complementary theoretical approaches provided a comprehensive analytical framework to understand small-scale fisheries in the context of the blue economy.

1.4.1 Political ecology

Environmental and human interaction studies date back to the 1700s (Robbins, 2012). Earlier writers, dominated by apolitical theoretical perspectives, ascribed environmental crises to Malthusian logic (Robbins 2012) that attributed social and ecological problems to population growth (Ehrlich 1968; Homer-Dixon 1994; Meadows 1972). Later, modern scholars attributed the low adoption of modern management and conservation as causes for global environmental crises. Scholars have also attributed natural resource concerns such as fishery depletion to Hardin's narrative of common pool resource exploitation, the 'Tragedy of the Commons' (Hardin 1968).

In an attempt to understand environmental crises differently, political ecology emerged in the 1970s and 1980s, grounded in Marxist political economy and materialist principles, with later contributions from post-structuralism (Bassett & Peimer 2015; Nygren & Rikoon 2008). Political ecology 'combines the concerns of ecology and a broadly defined political economy' (Blaikie &

Brookfield 1987, p.17). Defined as 'an integrated understanding of how environmental and political forces interact to mediate social and environmental change' (Bryant 1992, p. 12), its analytical approach examines the politics of natural resource management, access, and control, environmental knowledge, and their implications for livelihoods and environmental change. Political ecologists link changes in the environment and natural resources to politics, economics, and social control, which manifest through scale, history, conflict, power and distribution (Nolan, 2019). Robbins (2011) identified five dominant theses that drive political ecology analysis of ecological struggle and livelihoods in the face of change: 1) overexploitation is linked with marginalization; 2) the impacts of conservation; 3) conflicts over natural resources; 4) changing forms of environmental subjects and identities; and 5) how political and economic systems are affected by non-human systems (see detail in Robbins 2011, p.20).

Political ecology perspectives have gained tremendous traction in studying natural resource uses and conflicts, particularly in developing countries (Blaikie & Brookfield, 1987; Cockburn & Ridgeway, 1979; Escobar, 2006; Neimark et al., 2020; Nygren & Rikoon 2008). It is utilised in this thesis to illustrate how diverse players in Ghana employ various 'bundles of powers' to gain and maintain access and control over the coastal and maritime environment, or to benefit from specific resources (Hall et al., 2011; Ribot & Peluso, 2003). Access here describes the 'ability to benefit from things, including material objects, persons, institutions, and symbols' (see Ribot & Peluso, 2003, p.153). The political ecology perspective provides a framework for analysing the processes that shape the ability of small-scale fishers to access maritime spaces and resources. The specific political ecology concepts used to explain the implications of different blue economy sectors on the coastal fishing livelihoods are detailed in Chapters 3, 4 and 5.

While political ecology has been a valuable and influential approach for understanding the complex interactions between humans and the environment, it has also faced criticism for its emphasis on political factors over ecological and biophysical factors. For example, Nygren and Rikoon (2008) suggest that political ecologists have tended to view the environment primarily as a product of social and political processes, rather than as a complex and dynamic system that is influenced by a wide range of ecological factors. Similarly, Vayda and Walter (1999) argue that political ecology has sometimes overlooked the role of natural factors such as climate and geology in shaping environmental outcomes. While these critiques highlight important issues, it is a useful approach to highlight certain aspects of the fisheries sector in Ghana that are less well

documented such as the role of exclusion, power dynamics, and the impacts of coastal developments.

1.4.2 Integrating the sustainable livelihoods approach (SLA)

The SLA investigates the pursuit of livelihoods at individual, household, and community levels through assessing economic, social, natural, physical, and financial assets and their interactions with policies, institutions and processes and the wider vulnerability context (DfID, 1999; Scoones, 2015). It examines what livelihoods are comprised of and how they respond to pressures, disruptions and perturbations (Scoones, 2015). The SLA literature has evolved over the last three decades, building upon Amartya Sen's (1981) entitlement concept, Chambers and Conway's (1991) capability and sustainability argument, and the Department for International Development's (DfID) conceptualisation (DfID, 1999). Among other uses, the SLA has been used to study the vulnerability of coastal livelihoods to external shocks and their adaptive capacity (Allison & Ellis, 2001; Ferrol-Schulte et al., 2013). In chapter 4 of this thesis, I employed the SLA to discuss how industrial fishing affects the social, economic, and cultural development of fishing livelihoods. Despite the fact that the sustainable livelihood paradigm has a lot of practical applications, it has been criticized for not adequately addressing the power dynamics and historical patterns of change that are involved in mediating access to environmental resources (De Haan & Zoomers 2005). In light of these criticisms, the study combines the sustainable livelihood approach with the political ecology approach in order to address some of these shortcomings

1.5 Research methodology

1.5.1 Research design and method

The thesis uses a qualitative research methodology. A qualitative approach provides a deep understanding of the various dimensions of the topic through interpreting narratives of lived and personal experiences, including meanings, values, intentions and actions (Creswell & Poth, 2016; Marshall & Rossman, 2014, p.54). In the context of this study, a qualitative approach is more appropriate than a quantitative approach, particularly in understanding the social dimensions of small-scale fisheries (Barclay et al., 2017). The thesis employs a social constructivist paradigm, using an interpretive and analytic lens based on the research participants' responses (Creswell & Poth, 2016). The analysis draws on the perspectives and experiences of fishers, traders and processors, the actions and intentions of governmental stakeholders, and existing secondary/grey literature.

The research employs a multiple case study approach (Baxter & Jack, 2008; Yin, 2003). The case study approach has been criticised for being overly context-dependent (White, 2015). In contrast, the context-specific strengths of case study make this approach suitable for this research, particularly in examining the social dimensions of coastal fishing livelihoods in Ghana. Moreover, a case study approach aligns with the theoretical concepts of political ecology and sustainable livelihoods approach used for the research. The case studies consisted of eight communities in four administrative locations to contextualise the relationship between the blue economy and small-scale fishing livelihoods in Ghana.

1.5.2 Positionality

I bring a unique set of perspectives and experiences to the study of the blue economy in Ghana. My background as a fisheries practitioner and the son of a processed fish trader has provided me with firsthand exposure to the complexities of the fishing industry and the socio-economic dynamics at play. My entire childhood has revolved around processed fish, as my mother travels 400 kilometers each month as a merchant to purchase processed fish from the coast of Ghana to the north of Ghana.

Prior to commencing my doctoral studies at the University of Technology Sydney, I actively engaged in the field through my role as a research assistant for the African Union/WorldFish 'FishTrade' Project. This project enabled me to work extensively in Ghana, Togo, Benin, Nigeria, Côte d'Ivoire, and Liberia, where I interacted with various stakeholders including fishers, national fisheries departments, non-governmental organisations, multilateral funding agencies, and grassroots fisheries organisations. Furthermore, my involvement as a fishery consultant for the Fisheries Committee for the West Gulf of Guinea (FCWC), a Regional Fisheries Management Organization (RMFO) based in Ghana, has allowed me to gain insights into the challenges and governance practices in the region. In addition, the research assistant, a journalist by profession, has played a significant role leading the field data collection process. She has extensively covered fisheries issues in Ghana and produced radio documentaries for a Non-Governmental Organization (NGO) focused on addressing pertinent concerns in this domain. Both of us also identify ourselves, to some extent, as activists.

I have personal views on the current state of the fisheries management and some governance actions. These personal and professional experiences have shaped my knowledge. Recognising

my own biases and perspectives, I maintained a reflexive stance throughout the research process, continuously examining and acknowledging the potential influence of my own background, experiences, and positions on the research outcomes. By critically reflecting on my own positionality, I ensure transparency, rigor, and a comprehensive understanding of the complexities surrounding the issue. I paid more attention to the data than my personal biases by consciously striving to set aside my preconceptions and prejudices during the data analysis process. This commitment to objectivity enables me to scrutinize the evidence without distorting it through my own subjective lens. It allows me to approach the data with an open mind, critically evaluating its strengths and limitations, and drawing conclusions that are grounded in empirical evidence, ultimately contributing to more informed and objective conclusions in my thesis.

1.5.3 Case studies

Although there are other significant emerging maritime industries in Ghana (such as aquaculture and oil and gas), this study concentrated on two particular blue economy domains as case studies: i) maritime fishing and ii) coastal port developments. Ghana's economy relies on numerous sources of national income, including trade earnings through its ports and also maritime fishing. The Ghanaian government has invested extensively in and prioritised the two sectors over the past decade, making these an ideal focus for the research. Through the Ghana Port and Harbor Authority (GPHA), the government has invested \$1.5 billion and \$475 million on infrastructure expansion in the Tema and Sekondi-Takoradi ports respectively, as part of its growth strategy (GPHA, 2018). The government is determined to boost maritime trade by establishing a competitive marine trade environment and to position Ghana's ports as a key engine of economic growth (GPHA, 2018). New construction in the ports of Sekondi-Takoradi and Tema includes dry bulk terminals, container and multipurpose terminals. Land governance, local livelihood, access, and fisheries management have surfaced as crucial challenges in these port communities (Denchie et al., 2021). In addition, the oil and gas services sector and infrastructure are emerging, particularly in the port of Sekondi-Takoradi, raising concerns about local participation and posing considerable difficulties to local small-scale fisheries (Adjei & Overå, 2019; Overå, 2017).

Likewise, the Ghanaian maritime fishing industry has undergone continuous phases of industrialisation, modernisation and investment (Overå, 2011). These developments have led to a significant number of foreign nationals engaging in industrial fishing - in particular, the involvement of Chinese fishing trawler companies in Ghana maritime fishing has been a

hot media topic since the 2000s (Ghana News Agency [GNA], 2020; Hen Mpoano, 2022; Environmental Justice Foundation [EJF], 2020). Small-scale fisheries groups and non-governmental organisations working in the fishing sector have petitioned successive governments countless times regarding the overcapacity of trawling and impacts on local fishing livelihoods (Hen Mpoano, 2022). For example, Figure 1.1. is a case of such collective reaction taken by small-scale fisheries groups and non-governmental organizations in protest to the decision of Ghana's Minister of Fisheries and Aquaculture Development to license two trawler vessels in violation of a moratorium on the registration of new trawlers.



**Open letter to the Hon. Minister of Fisheries and Aquaculture
Development, Mavis Hawa Koomson
regarding the potential licensing of two new trawl fishing vessels**

We, the undersigned civil society organisations, unions, and associations working to secure safe, sustainable, and equitable fisheries in Ghana are writing this letter to seek clarification on the potential authorisation of two industrial trawlers in Ghanaian waters. This concern has arisen following the circulation of a letter purportedly detailing a request by DUMA FARMS AND FISHERIES LTD. that the vessels SHUN FENG 906 and SHUN FENG 907 are granted licences pending approval by the Fisheries Minister and the Ghana Maritime Authority.

Collectively, we are gravely concerned at the prospect of additional capacity being added to the trawl sector, given that populations of several vital species in Ghana's waters are already on the brink of collapse. These include small pelagics such as sardinella and chub mackerel, which are the lifeblood of coastal communities across the country - providing vital food and livelihood security to millions nationwide. The worsening ecological and humanitarian crises across Ghana's coastline are inextricably linked to the presence of poorly regulated foreign industrial trawlers, who have frequently been recorded capturing non-target species, making incursions into fishing zones reserved for canoes and using illegal gears to reduce the selectivity of catch.

To grant two additional licences would be in direct contradiction to the approved draft of the Marine Fisheries Management Plan 2022-2026 (MFMP), in which a three-year moratorium on new-entrants to the trawl sector has been proposed in recognition of the overfishing crisis that currently characterises the fishery. As a group of stakeholders, many of whom have participated tirelessly in the process of drafting this plan, we wish to make clear that a breach of the proposed moratorium would strike a considerable blow to the trust that is so vital in the design and implementation of effective fisheries governance.

Figure 1. 1: Excerpt from a letter to the Ghanaian Minister of Fisheries from ten civil society, non-governmental organisation, and small-scale fishing groups.
(Source: Hen Mpoano, 2022)

1.5.4 Selection of country, communities and participants

In considering where to conduct this research, my research questions and framework could feasibly be applied to any small-scale fishing community in West Africa. I decided to undertake research in Ghana, where I found that, in contrast to other countries of West Africa, the country's top political leaders had turned out to be strong proponents of global blue economy initiatives (see details in section 1.6). In addition, there is to date no in-depth case study on the relationship between the country's extensive small-scale fishing sector and its ambitions for the blue economy, therefore there was a potential to contribute to social science research.

I used a non-probability method of sampling, which is more targeted and representative, to choose communities and research participants (Marshall & Rossman, 2006). The communities were conveniently chosen for one or both of the following reasons: their proximity to port developments or their strong linkages to coastal fishing livelihoods. This study was not an ethnographic research project, but rather aimed to generate a suitable breadth of data across different locations in Ghana. Eight coastal fishing communities in Ghana, including Tema New Town, James Town, Teshie, Ningo-Prampram Sekondi, New Takoradi, Axim and Half Assini were involved in the research. Participants were purposively selected to provide comprehensive data, to ensure an appropriate diversity of perspectives from both men and women involved in coastal small-scale fishing, and to obtain the appropriate data to address the research topic (Berg, 2007). The communities and the research participants are discussed in more detail in the results chapters (Chapters 3-5).

1.5.5 COVID - 19 statement

The COVID-19 pandemic presented a serious challenge for the research in various ways: readjusting my personal life; dealing with my mental health due to the death of a family friend; being unable to access certain campus facilities; and modifying my research design. Border controls and other complicated protocols for public and personal safety were not considered in the initial design of the research. The emergence of COVID-19 therefore constituted a severe threat to the entire study design. For example, I originally intended to conduct a comparative study between Ghana and Liberia, which became unrealistic due to the circumstances. I decided to concentrate the study on Ghana but due to the border controls, I was unable to travel for data collection. I utilised innovative data collection tools such as Zoom technology and direct phone

calls . This method is innovative because it enabled the study to circumvent the enormous restrictions posed by the pandemic. I recruited a journalist from Ghana to work as a research assistant. She has a Master's degree in communication and has been a journalist for some time, therefore possessed strong interviewing skills relevant for qualitative interviews. She was proficient in both individual and group interviews, which suited my qualitative research approach. She also had a thorough knowledge of Ghana's coastal communities and spoke one of the languages (Fante). Through her prior engagement with the Environmental Justice Foundation in Ghana, she already had some level of knowledge regarding coastal fishing livelihoods.

I participated remotely in the field interviews and data collection via Zoom technology and direct phone calls. There was a major challenge with poor internet connectivity in remote coastal settlements, which frequently disrupted the interview process. In addition, this setup frequently distracted the interviews and diverted the focus of both the research assistant and the respondents. To address this issue, I employed an IT student on school holidays to manage my remote connection. The duration of the data collection was hugely impacted - I had planned to collect data for three months, but ended up completing the data collection in seven months. The change in the data collection approach also had significant cost implications for the research. In addition, the lack of face-to-face interactions with respondents may have reduced the depth and quality of the collected data. The poor internet connectivity in remote coastal settlements resulted in some technical problems and interruptions, which may have impacted the collected data's quality. One way in which I addressed this particular constraint was by extending the duration of the data collection process to attain a level of data quality that could be deemed satisfactory.

1.5.6 Data collection and analysis

The data was collected by using a semi-structured interview guide. Semi-structured interviews were suitable in this case because the research aimed to develop a better understanding of small-scale fishing livelihoods within the context of the blue economy in Ghana. Semi-structured interviews ensure that critical areas and aspects of the data were captured, and allowed flexibility for the participants to share their perspectives fully expressing themselves (Barrett & Twycross, 2018). Semi-structured interviews assisted in keeping our focus and sticking to the questions, but also allowed us to digress and manoeuvre during the interviews using 'probes' (Barrett & Twycross, 2018). The research participants included small-scale fishers (n=48), and processors and traders (n=48) in coastal fishing communities, including the chief fishermen (*apofohene*) and

chief fish processors (*konkohemaa*), who are leaders of small-scale fisheries actors at the local level. The interview approach comprised one-on-one and group interviews, which were all audio-recorded and transcribed. The other participants were a representative of the Ghana Industrial Trawlers Association (GTA) (n=1), government fishery officials (n=2), a government port official (n=1), and international and local non-governmental organisations (NGOs) (n=2).

The range of research participants provided different narratives and perspectives for the research to assess the local narratives of fishing livelihoods and the governmental/policy discourses of the blue economy by stakeholders (Dubios et al., 2016; May, 2019; Saldana, 2011). Interviews with governmental/policy stakeholders (elite interviewees) (Marshall & Rossman, 2006) were crucial to ascertain a better understanding at the national level of the actions, intentions, and perceptions of the blue economy. The number of government officials in the study was small because they were limited to institutional representatives as it was hard to find officials who were willing to give time for interviews. This reflects the difficulties of 'studying up,' or trying to undertake research with high-profile elites (Nader, 1969). It is conceivable that I may have been able to secure more interviews had I been physically present during that period, as I have prior research experience and established connections in Ghana that could have facilitated access to the elites in question. The fisheries managers were responsible for managing fisheries in two regions where data was collected, while the port official was in charge of the fisheries part of the ports. Because of the privileged roles of these government officials within their respective institutions, they provided valuable and well-informed data regarding policies, histories and future plans (Marshall & Rossman, 2006). These interviews were supplemented by media reports, press releases, and government statements to overcome any limitations of the small sample size.

The critical interview questions centred on coastal transformations and emerging configurations in maritime spaces and resource uses, as well as the individual and collective assets and capacities, obstacles and opportunities of the small-scale fishing value chain. Most of the time, the interviews started off with a general subject, such as community fisheries dynamics, declining coastal fisheries, or fishers' exclusion, and then moved on to a more specific topic, such as the social, cultural, and economic dimensions of livelihoods, as well as the impacts of industrial fishing and port developments on the community, and forms of adaptation. In the separate chapters, these aspects of the research are discussed in more detail. Additionally, the appendices 1-4 contain the full interview guide/questions for the different respondents.

In terms of the data analysis, themes were identified with the assistance of NVivo software. The themes were read, grouped and analysed (Vaismoradi et al., 2016) to form the results chapters of the thesis. The mix of data collection techniques helped with data triangulation, which allowed for comparison and cross-verification. For instance, local chief fishermen and chief fish processors have particular opinions, but that may not necessarily represent the full diversity of small-scale fisher voices within the communities. One way in which I triangulated the information from individual chief fishermen and chief fish processors was through focus group discussions (FGDs). Additionally, secondary data sources assisted in triangulating the chief fisher's and processors' opinions.

1.5.7 Research ethics

The Human Ethics Committee of the University of Technology Sydney granted ethical approval (ETH20-5320) for this research. Throughout the process of data collection, I paid particular attention to informed consent and approval, avoiding deceit, and maintaining confidentiality of information provided by individual participants and groups.

Based on my experience working with fishers in coastal Ghana, written consent is quite impractical and rarely used. In addition to the fact that it is an unfamiliar practice for fishers, the majority of fishers have low literacy/education levels and do not use formal signatures. Although individuals who were able to provide written consent were requested to do so, oral consent was obtained in most cases. Formal written consent was requested from key informants in government institutions and non-governmental organisations. A protocol sheet was used as a reference to explain to participants and groups at the beginning of the interview the purpose of the study, how data would be recorded and utilised, and the duration of the interview.

Participants were assured that they were not required to answer any questions that made them uncomfortable and that they had the choice to withdraw voluntarily at any time during the interviews. The identity of all participants in this thesis is concealed by using pseudonyms. In addition, coastal fishing communities and fisheries actors have very well-established local customary practices, which was strictly adhered to. For instance, to discuss the objectives of the project with the local fishing leaders, customary items may be required. In addition to adhering to local requirements, the study team avoided expressing opinions on local fishery-related issues and politics by rigorously adhering to the interview structure with the participants.

1.5.8 Navigating the fishing communities

My journey into eight fishing communities in Ghana began on 26th Jan 2021 with the research assistant as my main point of contact on the ground, while I stayed in Sydney. Before entry into a community, we established credible contacts in the community. Mostly, the gatekeepers were members of the chief fisherman's or chief processor's leadership team in the community. We maintained close contact with these gatekeepers who then briefed the chief fisherman or chief fish processor about our request for an interview with them and five other fishers and fisher processors in the community. Once the chief fisherman and chief fish processors agreed to be interviewed, we then scheduled a date suitable for them. Prior to the day of the interview, the research assistant visited the neighbourhood to meet with the interviewees and make formal introductions about the goals of the research. She also walked through the neighbourhood to speak with various locals informally about their fishing-related livelihoods. Through these informal walks, interpreters were identified from the community to assist with the interviews, in cases where language was a barrier. Specifically, in the coastal communities located in the Greater Accra region, Ga is predominantly spoken, in which the research assistant and I were not fluent. However, the research assistant was fluent in Fante, the predominant language for communities in the Western region. The interpreters were very helpful, with some of them volunteering additional time to help us understand their community culture and the significance of what they do and value in the area.

When visiting the communities, the majority of canoes were pulled ashore, and fishing activity in almost all communities had decreased. This decline in fishing activity across nearly all communities was a physical manifestation of the prevalent mood caused by Ghana's declining fish stocks. The situation was further compounded by the Covid-19 pandemic. There were also few fishing processing activities among women in the communities. The communities were quiet and because the communities were heavily dependent on small-scale fishing, this meant that other economic activities were also slower.



Figure 1. 2: Empty fish-drying mesh wire sits idle because women lacked enough catch to smoke in one of the coastal fishing communities

Credit: Mary Ama Bawa

Fishers in the communities looked despondent and sounded pessimistic that fishing would ever be the same in their lifetime. There was a general tone of anger among the participants, particularly against successive governments for not protecting the local small-scale fisheries. One of the fishers remarked:

'Let the whole world know that the next war to be fought will be on the sea; we will revolt against these Chinese for taking our livelihood from us' (56 years old chief fisherman).

During the interview process, when a canoe arrived from sea, we would usually take a break so interviewees could help the arriving crew to pull the canoe to shore or unload the catch. On several occasions, chief fishermen would invite the research assistant to follow him to witness arriving canoes and observe the types and small quantities of fish that was landed. About twenty

fish processors would usually surround a single canoe that harvested just about two pans (a big aluminum bowl for measuring fish) of pelagic fish. In all the fishing communities, the chief fisher's and chief processor's chambers were always filled with community members presenting fishery-related conflicts for arbitration. This was done on a daily basis. Sometimes, when a case was inconclusive, the chief fisherman would veto and rule on how the parties must conduct themselves as brothers and sisters in the community.



Figure 1. 3: A local chief fisher arbitrates a dispute between a fisherman and a processor involving cheating

Credit: Mary Ama Bawa

The quality of infrastructure was poor in the coastal fishing communities, including water, sanitation and road conditions. Many children of school going age were seen loitering. Teenage pregnancy was also visible in these fishing communities with very young girls carrying their children and walking around the streets. Some of the fishers and processors would usually show the research assistant previous projects that had been abandoned, including community facilities.



Figure 1. 4: [a] - Neighbourhood roadway that provides access to one of the fishing communities in the area; [b] - The major drainage that runs through one of the fishing communities
Credit: Mary Ama Bawa

1.6 Ghana as a case study

Ghana's appropriateness as a research case study in the blue economy is dependent not only on the country's efforts to promote the blue economy in West Africa, but also on the international stage. The current President of Ghana, Addo Dankwa Akufo-Addo, is one of only three African countries represented on the Norwegian Prime Minister's (Erna Solberg) High Level Panel on a Sustainable Ocean Economy (Oceanpanel.org, 2022). The Panel consists of 17 heads of state and government from Australia, United State of America, France, UK, Canada, Chile, Fiji, Ghana, Indonesia, Jamaica, Japan, Kenya, Mexico, Namibia, Norway, Palau, and Portugal.

The government of Ghana is developing a comprehensive National Integrated Maritime Strategy that encompasses ocean governance and investments in the blue economy, addressing key aspects of marine spatial planning, marine environmental protection and conservation, as well as oil and gas exploration, and other pertinent matters pertaining to Ghana's maritime domain (CEMLAWS Africa, 2021). The government of Ghana is dedicated to establishing a fully-fledged blue economy and recognises the blue economy as a vast potential growth area to achieve its development objectives, such as fostering economic growth, creating jobs, and enhancing living standards (National Development Planning Commission [NDPC], 2017). Recent decades have witnessed a rise in coastal development, aquaculture farms, offshore petroleum development, and implementation of new conservation schemes (closed season) in Ghana. In 2010, Ghana became an offshore oil-producing nation following the discovery of vast petroleum deposits along the West coast (BBC, 2010).

In addition to the rapid emergence of these blue economy sectors, the involvement of China in Ghana's commercial fishing and coastal industrialisation trajectory through development cooperation provides an additional important dimension for research in Ghana. Ghana had historically received aid and loans from Western institutions such as the World Bank and International Monetary Fund (IMF), European Union, and United States Agency for International Development (USAID). However, China uses a combination of finance sources, including commercial and concessional loans, and does not have conditions regarding political governance, making it a growing partner for most of African governments in recent decades (Carnegieendowment.org, 2021; Hesengerth, 2011). Over the past decade, Chinese infrastructure investments in and trade with Ghana have significantly surpassed most Western countries. Chinese exports to Ghana were worth \$7.5 billion in 2020 (OEC, 2022).

Finally, another important angle for selecting Ghana is that small-scale fishers constitute a significant proportion of ocean users, and small-scale fisheries contribute hugely to coastal livelihoods in most Ghanaian coastal communities. The small-scale fisheries sector contributes about 75 per cent of the total annual volume of fish catch in Ghana. Fish is the most available and preferred animal protein in Ghana with per capita consumption of fish of about 25 kg per annum, which is above the global average of 18 kg (FAO, 2016; Sarpong et al., 2005). The demand for fish has outstripped the country's capacity to supply, leading to Ghana becoming a net importer of about 40 per cent of consumed fish (Ministry of Fisheries and Aquaculture Development [MoFAD], 2015).

My motivation and curiosity for this research project, and the subsequent discussions in the various empirical chapters in Ghana, attempt to account for the status of small-scale fisheries in the country's blue economy aspirations. These aspirations are captured in an official Facebook post of Ghana's current Vice President, ahead of a fisheries and coastal management conference in August 2019 (Figure 1.5):

The key for success for Ghana's blue economy is to make it sustainable, inclusive and open to all Ghanaians so our waters can continue to provide benefits to both current and future generations of Ghanaians (Mahamudu Bawumia, 2019).



Dr. Mahamudu Bawumia ✓

August 16, 2019 · 🌐



A national fisheries and coastal management conference is taking place in Accra from August 19 to 21. This conference is organized by the University of Cape Coast and the University of Rhode Island in the United States with the endorsement of the Ghana Ministry of Fisheries and Aquaculture. The meeting will be keynoted by the renowned award winning oceans and fisheries economist, Professor Rashid Sumaila, of the University of British Columbia, Canada.

Fisheries and aquaculture are sectors in Ghana's broader blue economy, which is made up of all economic activities that are dependent on the country's ocean waters, rivers and lakes. Oil and gas is another blue economy sector that is familiar to Ghanaians.

The blue economy is much broader than fish and oil, it includes the sustainable harvesting of marine plants and biotechnology products; renewable energy; ocean and river transport; boat and ship building; tourism and recreation; coastal, marine ecosystem and water resource protection and management; and the generation of scientific information about people and nature.

If not for a prior commitments, I would have attended the national conference to underscore the huge potential of the blue economy for our country.

The key for success for Ghana's blue economy is to make it sustainable, inclusive and open to all Ghanaians so our waters can continue to provide benefits to both current and future generations of Ghanaians.

Figure 1. 5: A Facebook post by the Vice President of Ghana describing the country's commitment to the blue economy ahead of the 2019 national fisheries conference.

Source: Official Facebook Page [see link <https://bit.ly/415QPBN>]

1.7 Ghana in context

Ghana is located in western Africa between the Republics of Togo on the east, Côte d'Ivoire on the west and Burkina Faso on the north; the Gulf of Guinea forms its southern border. It has a total shoreline of about 550km and an estimated maritime area of about 228,000 km² (Dovlo et al., 2016). Ghana is located within the tropical equatorial area; its average annual temperature is between 25°C and 35°C. In 2020, Ghana's population was roughly 30 million, with an annual growth rate of 2.6 per cent (Ghana Statistical Services [GSS], 2010). The country is regarded as one of the more stable democratic countries in Africa.

1.7.1 Economy and development

Ghana has slowly reinforced its economic growth and development regime and seen moderate advances in education, health, and industrial modernisation after some years of political and economic instability (Ozyurt, 2019). The country's gross domestic product (GDP) has grown, bringing it close behind Nigeria as the second-largest economy in West Africa. With a Gross National Income (GNI) per capita of \$2,037 in 2017, Ghana is designated as a Lower Middle

Income Country (LMIC) (World Bank, 2022). Ghana's economy continues to rely largely on commodities such as cocoa, gold, oil, palm oil, rubber, and wood, in addition to mineral extraction (World Bank, 2022). Ghana's economy has been based on mining for decades; however, crude oil was discovered in 2007 and formal production began in December 2010. The oil and gas industry has made substantial contributions to Ghana's economy. In terms of petroleum revenues, Ghana earned US\$540.41 million in 2017 and US\$977.12 million in 2018 (Ministry of Finance, 2019), and it is anticipated that the industry will play a significant role in the country's future social and economic development. Other productive areas of the Ghanaian economy that are affected by global climate change include agriculture, fishing, and forestry (Ozyurt, 2019). Due to a lack of industrial sector diversity, the Ghanaian economy is vulnerable to fluctuations in international commodity prices (Ozyurt, 2019).

The Ghanaian economy continues to experience fiscal imbalances because of rapidly increasing public spending (Ministry of Finance, 2019). On seventeen occasions since independence (1957), Ghana has resorted to assistance programs from the International Monetary Fund (IMF) to manage its public debt (Ozyurt, 2019). Poor public finance management and large public payroll expenditures are the primary causes of Ghana's economic weakness (Ozyurt, 2019). In 2017, for example, Ghana spent 6.5 per cent of GDP on interest payments on external debt and 50 per cent of all domestic government revenues on public sector remuneration (Ozyurt, 2019). In 2021, the ratio of public debt to gross domestic product hit 76.19 per cent and the country has again initiated economic programme negotiations with the IMF (Ministry of Finance, 2021). In addition, due to the Covid-19 pandemic, the macroeconomic performance has deteriorated, as seen by increased interest rates, inflation, and depreciation of the national currency (Ghanaian cedi) (Business Insider Africa, 2022).

Although mobile banking services and digital wallets have increased financial inclusion in Ghana, the financial system in Ghana remains relatively underdeveloped (Ozyurt, 2019). A domestic banking sector crisis in 2018 has further hampered the growth potential of Ghana's financial services and insurance sectors (Blankson et al., 2020). Developing a diversified industrial sector to foster economic expansion and job creation remains a major challenge. Successive Ghanaian governments have attempted to diversify the economy to combat the rising unemployment rate. However, microenterprises and small- and medium-sized (SMEs) businesses continue to dominate the private sector (Ozyurt, 2019). State and state-owned enterprises (SOEs)

are the primary creators of formal sector jobs, while the formal private sector remains insignificant in job generation. Similar to other African countries, Ghana has a sizable informal industry. More than 80 per cent of occupations, according to the Ghanaian Living Standard Survey, are in the informal economy (Ghana Statistical Services, 2019). The agricultural sector comprises small, traditional farms with low productivity that employ more than 40 per cent of the active population and are mostly informal.

1.7.2 Social and political governance

Ghana became the first colonised African nation to achieve independence in 1957 (Kwasi, 2015). In 1992, after many years of political instability and four military coups, the country finally achieved democratic status (Kwasi, 2015). The ratification of a new constitution marked the beginning of Ghana's democratic transition, establishing the foundation for a democratic republic (Prempeh, 1999). The two largest political parties in Ghana's multiparty democracy are the New Patriotic Party (NPP), which support free-markets, and the National Democratic Congress (NDC), which has socialist leanings (Ozyurt, 2019; Osei, 2013). These political classifications are mostly rhetorical, as both parties have historically adopted an open economic approach to the nation's economic and social development. For instance, Ghana hosts the African Continental Free Trade Area (AfCFTA) secretariat, which was established in 2018 to promote free trade across the whole continent. The country runs a presidential and parliamentary system, with presidential terms restricted to four years and renewed for only one term. The country's judicial system is robust, with the Supreme Court functioning as the highest court of appeal.

Ghana is a free and open society because of its well-developed culture of participation and public conversation, its vibrant media environment, and the role played by its robust civil society groups (CSOs) (Ozyurt, 2019). In terms of social cohesion, the country enjoys more civil liberties, rights, and political stability than most other nations in Africa. Ghana is a multi-ethnic and multi-religious nation with a literacy rate above fifty percent (Graphic.com.gh, 2022). The country is predominantly peaceful despite a few minor disputes, the majority of which surround chieftaincy. Although inequality has increased since 1992, the country has adopted a number of policies that have supported good governance, economic and social reform and considerably reduced poverty during the past two decades (Allah-Mensah, 2006; Aryeetey et al., 2007). The economic and political transformation has raised Ghana's human development rate, placing it ahead of other sub-Saharan African states in the 'average human development' category (Human Development

Index, 2022). Significant problems exist with waste management and environmental pollution, especially in urban areas, a lack of adequate health and educational infrastructure, and access to safe drinking water in rural parts, especially in the north (Ozyurt, 2019). Likewise, the youth unemployment rate is exceptionally high (Jumpah et al., 2020).

1.8 Fishery development and governance

1.8.1 Importance of marine capture fisheries

Ghana has a long history of a vibrant fishing sector dating back to the 1700s (Alabi-Doku et al., 2020). Ghana's fishing industry began primarily as artisanal fishing with extremely basic and inefficient gear and techniques, operating close to coastal waters, lagoons, estuaries, and rivers (FAO, 2016). Over the years, the sector became more technologically advanced with new gears, equipment (outboard motors, purse-seine nets, synthetic netting materials) and procedures that are more effective being introduced (Overå, 2011). In addition, modern infrastructure, such as fishing vessels (See Chapter 4 for detail discussion on Ghana's industrial fishing transformation), as well as advancements in the handling, distribution, marketing, preservation, and processing of fish, have made Ghana a leading fishing nation in Africa. The presence of Ghanaian fishermen has exerted a significant influence on the fishing practices prevalent across West Africa, with historical records indicating that the earliest arrivals from Ghana can be traced back to the early 1900s (Alabi-Doku et al., 2020). Notably, this influence persists to the present day, as Ghanaian fishers continue to be present in several coastal nations within West Africa, including Senegal, The Gambia, Cameroon, and Cote d'Ivoire.

The Ghanaian fishing industry is characterised by small-scale fishing, which accounts for approximately 80 per cent of total marine production (Nunoo et al., 2015; Sarpong et al., 2005). The fisheries sector plays a major role in the national economy, contributing 3 per cent of gross domestic product (GDP) (MoFAD, 2015). The industry provides employment, contributes to foreign exchange revenues, and helps alleviate rural poverty. The marine capture fishing business employs 150,000 fishers, most of whom (including local fishers) are private-sector enterprises engaged in fishing operations, fish handling and processing, and distribution and marketing (Nunoo et al., 2015). The marine fishing industry constitutes a dominant contributor to Ghana's fish production, accounting for a substantial proportion of over 87 percent (Nunoo et al., 2015; Sarpong et al., 2005). Furthermore, with a per capita consumption of 25kg, the fisheries sector, including aquaculture and fish imports, assumes a pivotal role as a primary source of animal protein in the Ghanaian diet (Nunoo et al., 2015; Sarpong et al., 2005). Ghana's marine fishing

industry is comprised of three major sectors: artisanal (small-scale), semi-industrial (or inshore), and industrial (Nunoo et al., 2015). Additionally, aquaculture development is being aggressively pursued, notably along Volta Lake, but the rate of aquaculture development has been considerably slower than anticipated (Ofori et al., 2010). Dwindling fish stocks currently beset the marine fishing industry, and its contribution to poverty alleviation is waning.

1.8.2 Ghana fisheries governance

The Ministry of Fisheries and Aquaculture Development (MoFAD) is in charge of managing Ghana's marine and fisheries resources. The President of Ghana appoints the Minister, who has oversight and responsibility of national policy planning for the management and administration of fisheries. The Ghana Fisheries Commission (hereafter the Commission) is the regulatory and coordination agency, which regulates, manages, and coordinates the government's marine and fishing policy. The MoFAD and the Commission collaborate with other state ministries, agencies, and departments, including the Ministry of Trade and Industry, the Ministry of Transport, and the Ministry of Petroleum and Energy, to carry out their respective responsibilities. The legal framework for the governance and management of fisheries in Ghana is the Fisheries Act n.625 of 2002, amended in 2014 (Fisheries (Amendment) Act n. 880). The Wholesale Fish Marketing Act of 1963, the Ghana Ports and Harbours Authority Act of 1986, the Ghana Maritime Authority Act of 2002, and the Ghana Shipping Act of 2003 are also relevant pieces of legislation.

Ghana has ratified or is in the process of ratifying many international instruments and conventions, such as the United Nations Convention on the Law of the Sea (UNCLOS), the FAO Compliance Agreement (FAOCA), the UN Convention against Transnational Organised Crime (UNTOC), the Port State Measures Agreement (PSMA), the 1995 UN Fish Stocks Agreement (UNFSA), and the ILO Work in Fishing Convention (C188) (FCWC/WATF, 2016). Moreover, Ghana is an active member in regional and subregional bodies and arrangements that aim to promote fisheries and maritime cooperation. The headquarters of the Fisheries Committee for the West Central Gulf of Guinea is based in Ghana, an intergovernmental fisheries cooperation organisation with six-member states: Ghana, Togo, Benin, Nigeria, Côte d'Ivoire, and Liberia.

1.8.3 Fisheries conservation and management

Ghana has used a combination of conservation measures for its fisheries management. These include spatial and temporal restrictions, protection of specific species, permitted fishing gears, and fishing techniques. In Ghana's maritime seas, the ocean space has specified spatial

boundaries for the various fishing sectors. The ocean space has been generally organised, subdivided, and categorised into the Inshore Exclusive Zone and the Exclusive Economic Zone. The Inshore Exclusive Zone (IEZ) is a maritime area protected only for small-scale or artisanal canoes, semi-industrial vessels, and recreational fishing vessels (Fisheries Act 625, 2002). The Exclusive Economic Zone is restricted to industrial and tuna fishing vessels. The fisheries legislation also grants the Minister of the sector the authority to establish and restrict fishing in maritime reserve zones (Article 91 of the Fisheries Act 625) and implement closed-season enforcement for conservation purposes. Certain species, such as marine animals (seals, whales, dolphins, and porpoises etc.), pregnant lobsters, crabs, and juvenile fish, are classified as protected and, if caught, must be returned immediately unless given permission (Article 89 & 91 of the Fisheries Act 625).

For management and conservation objectives, the Fisheries Commission authorises the type, size, and use of fishing gear and fishing methods. Ghana's conservation regimes include other sustainable management measures, such as total permissible catch, quotas, and licences. For example, local industrial and semi-industrial businesses are required to have a Ghanaian licence, and foreign fishing vessels should have reached an agreement with Ghana. Ghana prohibits foreign nationals from owning industrial trawler fleets in whole or in part. Despite the legal prohibition on foreign nationals owning industrial trawler fleets either wholly or partially in Ghana, the industrial sector has a number of companies affiliated with distant water nations in Asia. The majority of these are Chinese and Korean companies, but because most locals are unable to differentiate between Chinese and Korean individuals, they classify every company as Chinese. This dominance is purportedly attributed to the inherent weaknesses in enforcement, stemming from inadequacies in capacity and instances of corruption (Environmental Justice Foundation, 2021). The Fisheries Enforcement Unit (FEU) was established in 2013 to handle monitoring, control, and surveillance pertaining to fisheries (MoFAD, 2022). The FEU collaborates with other state security agencies to carry out its enforcement responsibilities.

While these institutional, conservation and management rules and regulations are well-established, Ghana's fisheries continue to be subject to infractions (Mullié, 2019). To date, violations and unauthorised activities at sea are still common. Small-scale fishers commonly complain about the spatial and temporal intrusion and violations committed by industrial trawlers in their IEZ (Mullié, 2019). Other typical fisheries violations include using unauthorised gears

and methods, fishing without a licence, targeting prohibited species, falsifying documents, and unlawful transshipment (FCWC/WATF, 2016).

1.9 Structure of the thesis

This thesis is presented as a thesis by compilation in accordance with the University of Technology Sydney format. The thesis comprises six chapters, including this introduction chapter (Chapter 1) which outlines the context in which the overall research project is situated and conducted. A full review of academic and development practice/policy literature is presented in Chapter 2. At the time of compiling the thesis, Chapter 2 had been published (in *Ocean and Coastal Management* in February 2022). Chapters 3, 4 and 5 are empirical chapters based on fieldwork conducted in Ghana, with chapter 3 currently revised and resubmitted to the *Journal of Rural Studies*, chapter 4 published (in *Review of Fish Biology and Fisheries* in January 2023), and chapter 5 published (in *Maritime Studies*). The empirical chapters engage with relevant literature specific to the focus of each chapter and follow a unique format based on the specific journal format. It is essential to acknowledge that readers will encounter recurring elements throughout the chapters, particularly within the methodology sections of chapters 3-5. This recurrence stems from the fact that the empirical results presented in these chapters are derived from the same set of communities, with the participants remaining the same across the data collection process. The remaining chapter of the thesis includes the discussion and conclusion (Chapter six).

1.10 Research limitations

Given the COVID-19 pandemic I needed to overcome significant data collection challenges throughout the research journey. Despite this, I used networks and reviewed existing literature to acquire useful data and drew on my experiences as a fisheries scientist in Ghana. In this context, it is understandable that the research has not been able to recruit the number of respondents from each stakeholder group as I may have hoped. Notwithstanding these challenges, the data in hand has allowed the study to build a convincing body of evidence behind the research.

I do not foresee this study framework, conclusions, and recommendations as universally applicable across all fishing communities. I instead anticipate the study's importance in showing how economic, social and natural entanglements emerge and change during ongoing and contested transformations within context specific fishing communities in the Global South.

Finally, much of the research dealt with contentious political issues, such as illegalities, corruption, and the role of aid support in fisheries. Others have argued that there is no way to understand fishers' actions without tackling perceptions of corruption (Walley, 2004: p.26). The allegations of small-scale fishers and the counter-claims by industrial fishers and government officials raised in this research are based on our field interviews and literature sources. While this research addresses issues raised in the literature and allegations made by the small-scale fishers and processors we interviewed, it does not seek to provide factual evidence of specific instances of wrongdoing or corroborate any media investigative/documentary work.

References

- Adjei, M., & Overå, R. (2019). Opposing discourses on the offshore coexistence of the petroleum industry and small-scale fisheries in Ghana. *The Extractive Industries and Society*, 6(1), 190-197. <https://doi.org/10.1016/j.exis.2018.09.006>
- Allison, E. H., & Ellis, F. (2001). The livelihoods approach and management of small-scale fisheries. *Marine Policy*, 25(5), 377-388. [https://doi.org/10.1016/s0308-597x\(01\)00023-9](https://doi.org/10.1016/s0308-597x(01)00023-9)
- Andriamahefazafy, M., & Kull, C. A. (2019). Materializing the blue economy: tuna fisheries and the theory of access in the Western Indian Ocean. *Journal of Political Ecology*, 26(1), 403-424. <https://doi.org/10.2458/v26i1.23040>
- Arthur, P. (2010). Democratic consolidation in Ghana: The role and contribution of the media, civil society and state institutions. *Commonwealth & Comparative Politics*, 48(2), 203-226. <https://doi.org/10.1080/14662041003672510>
- Aryeetey, E., & McKay, A. (2007). Ghana: The Challenge of Transforming Sustained Growth into Poverty Reduction' in *Delivering on the Promise of Pro-Poor Growth: Insights and Lessons from Country Experience*. Washington, DC. The World Bank. <https://doi.org/10.1596/978-0-8213-6515-1>
- Awal, M. (2012). Ghana: Democracy, economic reform, and development, 1993-2008. *Journal of Sustainable Development in Africa*, 14(1), 97-118.
- Barbesgaard, M. (2018). Blue growth: savior or ocean grabbing?. *The Journal of Peasant Studies*, 45(1), 130-149. <https://doi.org/10.1080/03066150.2017.1377186>
- Barclay, K., Voyer, M., Mazur, N., Payne, A. M., Mauli, S., Kinch, J, ... & Smith, G. (2017). The importance of qualitative social research for effective fisheries management. *Fisheries Research*, 186, 426-438. <https://doi.org/10.1016/j.fishres.2016.08.007>
- Barrett, D., & Twycross, A. (2018). Data collection in qualitative research. *Evidence-Based Nursing*, 21(3), 63-64. <https://doi.org/10.1136/eb-2018-102939>
- Bassett, T. J., & Peimer, A. W. (2015). Dossier: 'About nature/society relations' - Political ecological perspectives on socioecological relations. *Natures Sciences Societies*, 23, 157-165 (2015). <https://doi.org/10.1051/nss/2015029>
- Bawumia, M. (2019, August 16). A national fisheries and coastal management conference is taking place [Status update]. Facebook. <https://www.facebook.com/profile/100044313225180/search/?q=Blueeconomy>
- Baxter, P., & Jack, S. (2008). Qualitative case study methodology: Study design and implementation for novice researchers. *The Qualitative Report*, 13(4), 544-559. <https://doi.org/10.46743/2160-3715/2008.1573>
- BBC (2010, December 15). Ghana oil begins pumping for first time. *British Broadcasting Cooperation*. <https://www.bbc.com/news/world-africa-11996983>

- Bennett, N. J. (2018). Navigating a just and inclusive path towards sustainable oceans. *Marine Policy*, 97, 139-146. <https://doi.org/10.1016/j.marpol.2018.06.001>
- Bennett, N. J., Blythe, J., White, C. S., & Campero, C. (2021). Blue growth and blue justice: Ten risks and solutions for the ocean economy. *Marine Policy*, 125, 104387. <https://doi.org/10.1016/j.marpol.2020.104387>
- Bennett, N. J., Cisneros-Montemayor, A. M., Blythe, J., Silver, J. J., Singh, G., Andrews, N., ... & Sumaila, U. R. (2019). Towards a sustainable and equitable blue economy. *Nature Sustainability*, 2(11), 991-993. <https://doi.org/10.1038/s41893-019-0404-1>
- Bennett, N. J., & Dearden, P. (2014). Why local people do not support conservation: Community perceptions of marine protected area livelihood impacts, governance and management in Thailand. *Marine Policy*, 44, 107-116. <https://doi.org/10.1016/j.marpol.2013.08.017>
- Bennett, N. J., Villasante, S., Espinosa-Romero, M. J., Lopes, P. F., Selim, S. A., & Allison, E. H. (2022). Social sustainability and equity in the blue economy. *One Earth*, 5(9), 964-968. <https://doi.org/10.1016/j.oneear.2022.08.004>
- Blaikie, P., Brookfield, H., 1987. *Land degradation and society*, London, Methuen.
- Blankson, N., Amewu, G., & Anarfo, E. B. (2020). The banking crisis in Ghana: Causes and remedial measures. *African Review of Economics and Finance*. ISSN 2042-1478
- Bond, P. (2019). Blue Economy threats, contradictions and resistances seen from South Africa. *Journal of Political Ecology*, 26(1), 341-362. <https://doi.org/10.2458/v26i1.23504>
- Brent, Z. W., Barbesgaard, M., & Pedersen, C. (2020). The Blue Fix: What's driving blue growth? *Sustainability Science*, 15(1), 31-43. <https://doi.org/10.1007/s11625-019-00777-7>
- Bryant, R. L. (1992). Political ecology: an emerging research agenda in Third-World studies. *Political Geography*, 11(1), 12-36.
- Burgess, M. G., Clemence, M., McDermott, G. R., Costello, C., & Gaines, S. D. (2018). Five rules for pragmatic blue growth. *Marine Policy*, 87, 331-339. <https://doi.org/10.1016/j.marpol.2016.12.005>
- Campling, L., & Havice, E. (2014). The problem of property in industrial fisheries. *The Journal of Peasant Studies*, 41(5), 707-727. <https://doi.org/10.1080/03066150.2014.894909>
- Chambers, R., & Conway, G. (1991). *Sustainable Livelihood*. IDS Discussion paper 296. <https://opendocs.ids.ac.uk/opendocs/bitstream/handle/20.500.12413/775/Dp296.pdf>
- Childs, J. R., & Hicks, C. C. (2019). Securing the blue: political ecologies of the blue economy in Africa. *Journal of Political Ecology*, 26(1), 323-340. <https://doi.org/10.2458/v26i1.23162>
- Cisneros-Montemayor, A. M., Croft, F., Issifu, I., Swartz, W., & Voyer, M. (2022). A primer on the 'blue economy': Promise, pitfalls, and pathways. *One Earth*, 5(9), 982-986. <https://doi.org/10.1016/j.oneear.2022.08.011>

- CEMLAWS Africa (2021, July). Developing A Comprehensive National Integrated Maritime strategy. <https://www.cemlawsafrica.com/developing-a-comprehensive-national-integrated-maritime-strategy/>
- Cohen, P. J., Allison, E. H., Andrew, N. L., Cinner, J., Evans, L. S., Fabinyi, M., ... & Ratner, B. D. (2019). Securing a just space for small-scale fisheries in the blue economy. *Frontiers in Marine Science*, 6, 171. <https://doi.org/10.3389/fmars.2019.00171>
- Collier, C. E. (2020). Enabling conditions for community-based comanagement of marine protected areas in the United States. *Marine Policy*, 122, 104244. <https://doi.org/10.1016/j.marpol.2020.104244>
- Creswell, J. W., & Poth, C. N. (2016). *Qualitative inquiry and research design: Choosing among five approaches*. Sage publications.
- Denchie, E. O., Ablo, A. D., & Overå, R. (2021). Land governance and access dynamics in Sekondi-Takoradi, Ghana. *African Geographical Review*, 40(4), 364-377. <https://doi.org/10.1080/19376812.2020.1831560>
- Dornan, M., Morgan, W., Newton Cain, T., & Tarte, S. (2018). What's in a term? 'Green growth' and the 'blue-green economy' in the Pacific islands. *Asia & the Pacific Policy Studies*, 5(3), 408-425. <https://doi.org/10.1002/app5.258>
- Dovlo, E., K. Amador, and B. Nkrumah. 2016. 'Report on the 2016 Ghana Marine Canoe Frame Survey'. Ministry of Fisheries and Aquaculture Development, Fisheries Scientific Survey Division, Information Report No 36.
- Environmental Justice Foundation (2020, May 27). *New trawlers arrive from china as Ghana's fisheries teeter on brink of collapse*. <https://ejfoundation.org/news-media/new-trawlers-arrive-from-china-as-ghanas-fisheries-teeter-on-brink-of-collapse>
- Environmental Justice Foundation (EJF) (2021). Recommendation for the reform of Ghana's Inshore Exclusion Zone (IEZ) reserved for small-scale fishing activities. Policy Brief. https://ejfoundation.org/resources/downloads/Briefing_extension_IEZ_boundary-2021-v2a.pdf
- Ertör, I., & Hadjimichael, M. (2020). Blue degrowth and the politics of the sea: rethinking the blue economy. *Sustainability Science*, 15(1), 1-10. <https://doi.org/10.1007/s11625-019-00772-y>
- Escobar, A. (2006). Difference and conflict in the struggle over natural resources: a political ecology framework. *Development*, 49(3), 6-13. <https://doi.org/10.1057/palgrave.development.1100267>
- European Commission (2020). The EU Blue Economy Report. 2020, Publications Office of the European Union, Luxembourg
- Fabinyi, M., Dressler, W. H., & Pido, M. D. (2017). Fish, trade and food security: moving beyond 'availability' discourse in marine conservation. *Human Ecology*, 45(2), 177-188. <https://doi.org/10.1007/s10745-016-9874-1>

- FAO (2015). Voluntary guidelines for securing sustainable small-scale fisheries in the context of food security and poverty eradication. In: FAO Rome. <https://www.fao.org/voluntary-guidelines-small-scale-fisheries/en/>
- FAO (2016). FAO. Fishery and Aquaculture Country Profiles. The Republic of Ghana - Ghana. http://www.fao.org/fishery/countrysector/naso_ghana/en
- FAO (2018). Achieving blue growth: Building vibrant fisheries and aquaculture communities. *FAO Fisheries and Aquaculture Department*. <http://www.fao.org/3/CA0268EN/ca0268en.pdf>
- FCWC/WATF (2016). A review of the FCWC countries' legal framework for fisheries. EN Tema, Ghana
- Ferrol-Schulte, D., Wolff, M., Ferse, S., & Glaser, M. (2013). Sustainable Livelihoods Approach in tropical coastal and marine social–ecological systems: A review. *Marine Policy*, 42, 253-258. <https://doi.org/10.1016/j.marpol.2013.03.007>
- Ghana News Agency (2020, June 6). Canoe fishermen petition President to save sector from the scourge of Saiko. <https://gna.org.gh/2020/06/canoe-fishermen-petition-president-to-save-sector-from-the-scourge-of-saiko/>.
- Ghana Ports and Harbours Authority (GPHA) (2022). '*Ghana Ports handbook 2018-2019*'. <https://www.ghanaports.gov.gh/>
- Ghana Statistical Services (2017). The Ghana Living Standards Survey (GLSS). https://open.africa/dataset/38102d96-1393-4918-a1a7-556eca8491ad/resource/839a1758-146c-40cd-957d-37d26aa84fb6/download/glss7-main-report_final.pdf
- Gibson, D., & Sumaila, U. R. (2017). Determining the degree of 'small-scaleness' using fisheries in British Columbia as an example. *Marine Policy*, 86, 121-126. <https://doi.org/10.1016/j.marpol.2017.09.015>
- Gyesi, Z. K. (2022, February 11). Literacy rate now 69.8 per cent. *Graphic*. <https://www.graphic.com.gh/news/general-news/literacy-rate-now-69-8-per-cent.html>
- Hadjimichael, M. (2018). A call for a blue degrowth: unravelling the European Union's fisheries and maritime policies. *Marine Policy*, 94, 158-164. <https://doi.org/10.1016/j.marpol.2018.05.007>
- Hall, D., Hirsch, P., & Li, T. M. (2011). *Introduction to powers of exclusion: land dilemmas in Southeast Asia*. National University of Singapore Press. Singapore
- Hardin, G. (1968). The tragedy of the commons: the population problem has no technical solution; it requires a fundamental extension in morality. *Science*, 162(3859), 1243-1248. <https://doi.org/10.1126/science.162.3859.1243>
- Hen Mpoano (2022, July 5). Open letter to the Hon. Minister of Fisheries and Aquaculture Development. <https://henmpoano.org/wp-content/uploads/2022/07/Open-Letter-to-Fisheries-Minister.pdf>

- Homer-Dixon, T. F. (1994). Environmental scarcities and violent conflict: evidence from cases. *International security*, 19(1), 5-40. <https://doi.org/10.2307/2539147>
- Human Development Index (2022). HDI Dimensions and Indicators. Retrieved from <https://hdr.undp.org/data-center/human-development-index#/indicies/HDI>
- Isaacs, M. (2019, November 29). Is the Blue Justice concept a human rights agenda? Retrieved from africaportal.org
- Jentoft, S. (2014). 10 Legal pluralism and the governability of fisheries and coastal systems in the world. *Conflict, Negotiations and Natural Resource Management: A legal pluralism perspective from India*, 178. <https://doi.org/10.1080/07329113.2011.10756673>
- Jentoft, S., Chuenpagdee, R., Said, A. B., & Isaacs, M. (2022). Blue justice: Small-scale fisheries in a sustainable ocean economy. *MARE Publication Series*. <https://doi.org/10.1007/978-3-030-89624-9>
- Jentoft, S., McCay, B. J., & Wilson, D. C. (1998). Social theory and fisheries co-management. *Marine Policy*, 22(4-5), 423-436. [https://doi.org/10.1016/s0308-597x\(97\)00040-7](https://doi.org/10.1016/s0308-597x(97)00040-7)
- Jumpah, E. T., Ampadu-Ameyaw, R., & Owusu-Arthur, J. (2020). Youth employment in Ghana: economic and social development policies perspective. *World Journal of Entrepreneurship, Management and Sustainable Development*. <https://doi.org/10.1108/wjemsd-07-2019-0060>
- Klinger, D. H., Eikeset, A. M., Davíðsdóttir, B., Winter, A. M., & Watson, J. R. (2018). The mechanics of blue growth: management of oceanic natural resource use with multiple, interacting sectors. *Marine Policy*, 87, 356-362. <https://doi.org/10.1016/j.marpol.2017.09.025>
- Kwasi, D. B. (2015). Political leadership in Ghana: 1957 to 2010. *African Journal of Political Science and International Relations*, 9(2), 49-61. <https://doi.org/10.5897/ajpsir2014.0730>
- Lune, H., & Berg, B. L. (2017). *Qualitative research methods for the social sciences*. Pearson Education Limited. England.
- Marshall, C., & Rossman, G. B. (2014). *Designing qualitative research*. Sage publications.
- Martin, J. (2012). *The Small-Scale Coastal Fleet in the Reform of the Common Fisheries Policy*, EPRS: European Parliamentary Research Service. <https://policycommons.net/artifacts/1334250/the-small-scale-coastal-fleet-in-the-reform-of-the-common-fisheries-policy/1939502/> on 12 Dec 2022. CID: 20.500.12592/nkr5jj
- McAfee, K. (2012). The contradictory logic of global ecosystem services markets. *Development and Change*, 43(1), 105-131. <https://doi.org/10.1111/j.1467-7660.2011.01745.x>
- Meadows, D. H., Meadows, D. L., Randers, J., & Behrens III, W. W. (1972). The Limits to Growth - Club of Rome. <https://policycommons.net/artifacts/1529440/the-limits-to-growth/2219251/>

- Mills, D. J., Westlund, L., de Graaf, G., Kura, Y., Willman, R., & Kelleher, K. (2011). Under-reported and undervalued: small-scale fisheries in the developing world. CABI Books. CABI International. <https://doi.org/10.1079/9781845936075.0001>
- Ministry of Finance (2021, March 31). Annual Public Debt Report. <https://mofep.gov.gh/index.php/public-debt/annual-public-debt-report>
- Ministry of Fisheries and Aquaculture Development. (2022). Monitoring, Control, and Surveillance Division. <https://www.mofad.gov.gh/agencies/fisheries-commission/divisions-of-fisheries-commission/monitoring-control-and-surveillance-division/>
- Ministry of Fisheries and Aquaculture Development [MoFAD] (2015). National Fisheries Management Plan, Government of Ghana pp48. <https://mofad.gov.gh/wp-content/uploads/2016/07/FISHERIES-MANAGEMENT-PLAN-OF-GHANA.pdf>
- Mullie, W. C. (2019). Apparent reduction of illegal trawler fishing effort in Ghana's Inshore Exclusive Zone 2012–2018 as revealed by publicly available AIS data. *Marine Policy*, 108, 103623. <https://doi.org/10.1016/j.marpol.2019.103623>
- Nader, L. (1969). 'Up the Anthropologist: Perspectives Gained from studying up'. pp. 284–311 in D. Hymes (ed) *Reinventing Anthropology*. New York: Random House
- Neimark, B., Mahanty, S., Dressler, W., & Hicks, C. (2020). Not just participation: the rise of the eco-preariat in the green economy. *Antipode*, 52(2), 496-521. <https://doi.org/10.1111/anti.12593>
- Nolan, C. (2019). Power and access issues in Ghana's coastal fisheries: a political ecology of a closing commodity frontier. *Marine Policy*, 108, 103621. <https://doi.org/10.1016/j.marpol.2019.103621>
- Nunoo, F. K. E., Asiedu, B., Amador, K., Belhabib, D., Lam, V., Sumaila, R., & Pauly, D. (2014). Marine fisheries catches in Ghana: Historic reconstruction for 1950 to 2010 and current economic impacts. *Reviews in Fisheries Science & Aquaculture*, 22(4), 274-283. <https://doi.org/10.1080/23308249.2014.962687>
- Nygren, A., & Rikoon, S. (2008). Political ecology revisited: Integration of politics and ecology does matter. *Society and Natural Resources*, 21(9), 767-782. <https://doi.org/10.1080/08941920801961057>
- OCE (2022). Ghana and China trade dynamics. <https://oec.world/en/profile/bilateral-country/chn/partner/gha> (accessed 6 December 2022).
- Oceanpanel.org (2022). High Level Panel for a Sustainable Ocean Economy. <https://oceanpanel.org/about-ocean-panel/> (accessed November, 2022)
- OECD (2016, April 27). The ocean economy in 2030: OECD. <https://doi.org/10.1787/9789264251724-en>

- Ofori, J. K., Abban, E. K., Karikari, A. Y., & Brummett, R. E. (2010). Production parameters and economics of small-scale tilapia cage aquaculture in the Volta Lake, Ghana. *Journal of Applied Aquaculture*, 22(4), 337-351.
- Okafor, C. (2022, November 4). See alarming rise in price of basic commodities in Ghana as inflation reaches all-time high of 40 percent. *Business Insider Africa*.
<https://africa.businessinsider.com/local/markets/alarm-as-inflation-rate-in-ghana-reaches-an-all-time-high-of-40/njb2xsx>
- Okafor-Yarwood, I., Kadagi, N. I., Miranda, N. A., Uku, J., Elegbede, I. O., & Adewumi, I. J. (2020). The blue economy-cultural livelihood-ecosystem conservation triangle: the African experience. *Frontiers in Marine Science*, 586.
<https://doi.org/10.3389/fmars.2020.00586>
- Overå, R. (2017). Local navigations in a global industry: The gendered nature of entrepreneurship in Ghana's oil and gas service sector. *The Journal of Development Studies*, 53(3), 361-374. <https://doi.org/10.1080/00220388.2016.1184250>
- Overå, R. (2011). Modernisation Narratives and Small-Scale Fisheries in Ghana and Zambia. *Forum for Development Studies*, 38(3), 321-343.
<https://doi.org/10.1080/08039410.2011.596569>
- Owusu, V., & Andriess, E. (2020). From open access regime to closed fishing season: Lessons from small-scale coastal fisheries in the Western Region of Ghana. *Marine Policy*, 121, 104162. <https://doi.org/10.1016/j.marpol.2020.104162>
- Özyurt, S. (2019). Ghana: What Economic Challenges? Working Paper. Agence française de développement. <https://www.afd.fr/sites/afd/files/2019-06-12-10-11/ghana-economic-challenges.pdf> (accessed 24 October 2022)
- Pauli, G. A. (2010). *The blue economy: 10 years, 100 innovations, 100 million jobs*. Paradigm publications.
- Pauly, D. (2018). A vision for marine fisheries in a global blue economy. *Marine Policy*, 87, 371-374. <https://doi.org/10.1016/j.marpol.2017.11.010>
- PEMSEA (2012, July 1). Toward an Ocean-based Blue Economy: Moving Ahead with the Sustainable Development Strategy for the Seas of East Asia. *The Fourth Ministerial Forum on the Sustainable Development Strategy for the Sea of East Asia*
<http://pemsea.org/publications/agreements-and-declarations/changwon-declaration-toward-ocean-based-blue-economy-moving> (accessed 6 December 2020).
- Ribot, J. C., & Peluso, N. L. (2003). A theory of access. *Rural Sociology*, 68(2), 153-181.
<https://doi.org/10.1111/j.1549-0831.2003.tb00133.x>
- Robbins, P. (2011). *Political ecology: A critical introduction* (Vol. 16): John Wiley & Sons.
- Rousseau, Y., Watson, R. A., Blanchard, J. L., & Fulton, E. A. (2019). Defining global artisanal fisheries. *Marine Policy*, 108, 103634. <https://doi.org/10.1016/j.marpol.2019.103634>
- Saldana, J. (2011). *Fundamentals of qualitative research*: OUP USA.

- Sarpong, D. B., Quatey, S. N., & Harvey, S. K. (2005). The Economic and Social Contribution of Fisheries to Gross Domestic Product and Rural Development in Ghana. *Food and Agriculture Organization of The United Nations (FAO)*.
- Scheidel, A., Ertör, I., & Demaria, F. (2021). Degrowth in agrarian and fisheries studies. In *Handbook of Critical Agrarian Studies* (pp. 647-655). Edward Elgar Publishing. <https://doi.org/10.4337/9781788972468.00081>
- Scoones, I. (2015). *Sustainable Livelihoods and Rural Development*. Rugby: Practical Action Publishing. <https://doi.org/10.1057/s41301-016-0020-6>
- Sen, A. (1981). Ingredients of famine analysis: availability and entitlements. *The Quarterly Journal of Economics*, 96(3), 433-464. <https://doi.org/10.2307/1882681>
- Silver, J. J., & Campbell, L. M. (2018). Conservation, development and the blue frontier: The Republic of Seychelles' debt restructuring for marine conservation and climate adaptation program. *International Social Science Journal*, 68(229-230), 241-256. <https://doi.org/10.1111/issj.12156>
- Silver, J. J., Gray, N. J., Campbell, L. M., Fairbanks, L. W., & Gruby, R. L. (2015). Blue economy and competing discourses in international oceans governance. *The Journal of Environment & Development*, 24(2), 135-160. <https://doi.org/10.1177/1070496515580797>
- Smith, H., & Basurto, X. (2019). Defining small-scale fisheries and examining the role of science in shaping perceptions of who and what counts: a systematic review. *Frontiers in Marine Science*, 6, 236. <https://doi.org/10.3389/fmars.2019.00236>
- TBTI (2020). Too Big to Ignore: Global partnership for small-scale fisheries research. <http://toobigtoignore.net/>
- Teh, L. C., & Sumaila, U. R. (2013). Contribution of marine fisheries to worldwide employment. *Fish and Fisheries*, 14(1), 77-88. <https://doi.org/10.1111/j.1467-2979.2011.00450.x>
- UNCTAD (2014). The Oceans Economy: Opportunities and Challenges for Small Island Developing States. United Nations Conference on Trade and Development. United Nations Publication. https://unctad.org/system/files/official-document/ditcted2014d5_en.pdf
- UNEP (2011). Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication - A Synthesis for Policy Makers. www.unep.org/greeneconomy
- United Nations. (1987). Report of the World Commission on environment and development: 'our common future.' *Brundtland Report*. <https://sustainabledevelopment.un.org/content/documents/5987our-common-future.pdf>
- Vaismoradi, M., Jones, J., Turunen, H., & Snelgrove, S. (2016). Theme development in qualitative content analysis and thematic analysis. <https://doi.org/10.5430/jnep.v6n5p100>
- Voyer, M., Benzaken, D., & Rambourg, C. (2022). Institutionalizing the Blue Economy: an examination of variations and consistencies among Commonwealth

- countries. *Philosophical Transactions of the Royal Society B*, 377(1854).
<https://doi.org/10.1098/rstb.2021.0125>
- Voyer, M., Quirk, G., McIlgorm, A., & Azmi, K. (2018). Shades of blue: what do competing interpretations of the Blue Economy mean for oceans governance?. *Journal of environmental policy & planning*, 20(5), 595-616.
<https://doi.org/10.1080/1523908x.2018.1473153>
- Walley, C. J. (2004). *Rough Waters: Nature and Development in an East African Marine Park*. Princeton (NJ): Princeton University Press. <https://doi.org/10.3366/afr.2007.0061>
- White, C. (2015). *Social resilience, place and identity in the small-scale North Norfolk “Cromer Crab” fishery, UK* (Doctoral dissertation, University of East Anglia).
- Winder, G. M., & Le Heron, R. (2017). Assembling a Blue Economy moment? Geographic engagement with globalizing biological-economic relations in multi-use marine environments. *Dialogues in Human Geography*, 7(1), 3-26.
<https://doi.org/10.1177/2043820617691643>
- World Bank. (2019). PROBLUE: Healthy Oceans, Healthy Economies, Healthy Communities. World Bank, <https://www.worldbank.org/en/programs/problue/overview>.
- World Bank (2022). Data for Ghana, Lower middle income. Retrieved from <https://data.worldbank.org/?locations=GH-XN> (accessed 10 December 2022)
- Yin, R. K. (2003). *Case Study Research: Design and Methods* (3rd ed.). Thousand Oaks: Sage.

Chapter 2

Small-Scale Fisheries in the Blue Economy: Review of Scholarly Papers and Multilateral Documents

Abstract

The blue economy concept has been discussed at high-level policy fora since the 2012 United Nations Conference on Sustainable Development. Simultaneously, a burgeoning body of literature on the blue economy is emerging from academia. This scoping analysis uses data from journal articles and policy documents to provide a preliminary understanding of how small-scale fisheries in the blue economy are framed by academics and policymakers. We found that high-level policies include ideal proposals for fisheries and other ocean sectors, but in ways that suit industrial-scale fisheries and aquaculture more than small-scale fisheries. Academics highlight emerging uncertainties for small-scale fisheries. The review points out differences between small-scale and industrial-scale fisheries, particularly the social aspects that could make small-scale fisheries more suitable for achieving some of the stated goals of a blue economy. We conclude that, while the blue economy in its broadest sense is still a work in progress, it should be guided by clearly articulated goals in terms of governance that supports small-scale fisheries.

Keywords: Blue economy, Small-scale fisheries, Human dimension of fisheries, Systematic review

2.1. Introduction

Small-scale fisheries are an integral part of the ocean economy, producing nearly a quarter of the global fish available for consumption (Schorr, 2005; Mills et al. 2011), and employing 44 per cent of people directly engaged in fishing. Small-scale fishers and fish workers combined provide 90 per cent of the total fisheries sector jobs and 30 per cent of landed quantities (Teh & Sumaila, 2013). Small-scale fisheries also generate important non-monetary contributions such as self-identity, kinship, household, and community linkages (Arias Schreiber et al., 2020). While the livelihoods of small-scale fishers featured prominently in earlier conceptual framings of the blue economy (Silver et al., 2015), the emerging shifts, initiatives, and concepts within the blue economy are turning out to be global in scope, rapid in pace, and colossal in scale, exposing small-scale fisheries to intense competition (Cohen et al., 2019). The growing academic evidence and social campaigns of fishers and social activists suggest an inherent danger for small-scale fisher and coastal communities (Bennett et al., 2019; Cisneros-Montemayor et al., 2019; Cohen et al., 2019; Kassah & Asare, 2022). Building on these emerging critiques of the blue economy, this paper systematically reviews how small-scale fisheries are framed in emerging policy and scholarly blue economy literature.

The 2012 United Nations Conference on Sustainable Development (Rio+20) characterised ocean, coastal and maritime discourse with the concept of 'blue economy', building on the 1992 Rio Earth Summit 'green economy' paradigm (Silver et al., 2015). The concept has since become a benchmark that guides core global ocean governance discourse and objectives (Brent et al., 2018). The blue economy aims to combine environmental sustainability and economic value, designed within governance policies and growth models (Voyer et al., 2018). The rising threat of anthropocentric climate change among others has led to heightened global advocacy for more robust ocean governance, and transition to blue economy prescriptions (Bennett, 2018; Voyer et al., 2018).

Many stakeholders are involved in the blue economy, including NGOs, multilateral organisations, the private sector, academics, governments, local peoples, and fisheries activists. No single interpretation of the blue economy and how it applies to long-term sustainability goals exists (Lee et al. 2020; Voyer et al. 2018), and there are different perspectives about the roles different ocean economy sectors should play in achieving the blue economy aspirations (Barbesgaard, 2018). In the fast emerging blue economy discourse, the role of small-scale fisheries has become a focus of debate and uncertainty among blue economy stakeholders,

environmental activists and academia (Brent et al., 2018; Bennett et al., 2019; Silver et al., 2015), reflected in the numbers of academic journal articles on the topic in recent years (Fig 2.1). Some have argued that the blue economy has the potential to concentrate power and generate wealth for a relative few, and may fail to recognise the flexible rights of small-scale fishing people and other marginalised ocean users (Barbesgaard, 2018; Bennett et al. 2019). Recently, there has been some discussion about how blue economy initiatives and development may be equitable, just, and sustainable across jurisdictions and for different ocean users, e.g. small-scale fishers (Bennett et al. 2021; Cisneros-Montemayor et al. 2021). The concerns raised regarding the blue economy potentially threaten small-scale fisheries and coastal communities' economic and social systems. While several researchers have highlighted the competing interpretations of the blue economy (Lee et al. 2020; Silver et al., 2015; Voyer et al., 2018) and how they may present social challenges (Bennett et al. 2019; Cohen et al. 2019), few have drawn on any systematic research to comprehensively assess the relationship of small-scale fisheries to the blue economy. This systematic-narrative review focuses on how small-scale fisheries have been framed in the blue economy, focusing on two stakeholder groups - multilateral bodies and academia. While multilateral organisations are key actors in the world of practice, academia, on the other hand, produces critical knowledge that informs practice. Both provide perspectives that can inform and reinforce each other. Understanding how small-scale fisheries are narratively framed in the blue economy literature are indicators of some of the challenges and opportunities they are likely to encounter in practice (Johnson, 2006; Overå, 2011).

In the next section, we outline the review procedure. After that, we present the review articles' background descriptive statistics and detail some of the blue economy conceptualisations from multilateral organisations and academic scholars. We then discuss how framings of the interactions between the blue economy and small-scale fisheries are characterised by the concept of the 'buzzword', and how particular social features of small-scale fisheries tend to be underplayed.

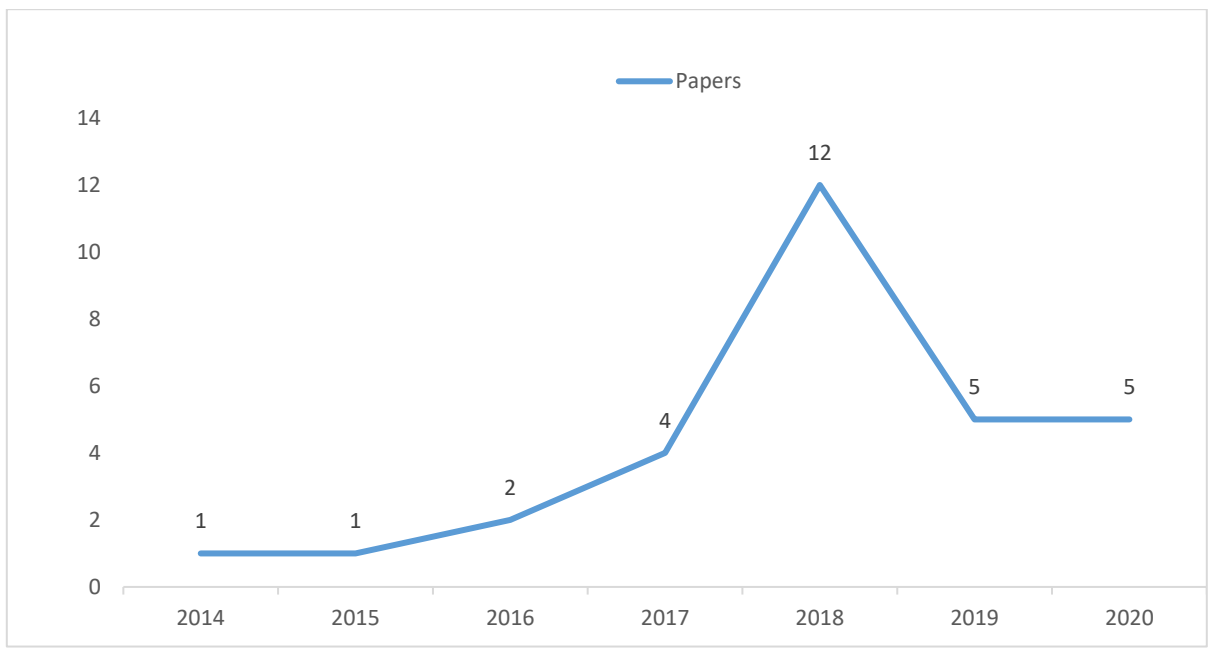


Figure 2. 1: Trend in annual journal publications on the Blue Economy and Small-scale fisheries (Note: See section 2.1 for the search strategy)

2.2 Materials and methods

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) approach guides this study. This approach uses a search strategy to identify academic journals, select targeted papers, and to examine the targeted papers (Ahinkorah et al., 2020). The study reviewed articles on relationships between the blue economy and small-scale fisheries. The study is a scoping review and uses a rigorous and transparent method to identify and analyse the relevant literature systematically, hence is termed a systematic-scoping review (Anuga et al., 2020). A scoping review is preferable where the study proposes to scope a body of literature and clarify concepts (Munn et al., 2018). Often, a scoping review is performed to examine and clarify the definitions used in particular literature. This approach to conducting reviews helps to investigate how the notion or concept has been defined, classified, and understood in the existing literature (Schaink et al., 2012). The scoping review approach is utilised to provide evidence of the emerging literature around the blue economy concept and identify how small-scale fisheries are being framed. According to Entman (1993), the concept of framing entails selecting and emphasising elements and using the highlighted elements to build an argument about problems, evaluation or recommendation. Most frames are defined by what they include and exclude. However, both omissions and inclusions may be critical in guiding the audience through potential problem definitions, explanations, evaluations, and recommendations (Entman, 1993).

2.2.1 Search strategy/inclusion and exclusion criteria

Data was obtained from two sources. We conducted a systematic search for published articles in SCOPUS database, which has a broader scope, accuracy and coverage than other similar databases (Falagas et al., 2008; Hong & Chan, 2014) (Figure 2.2). Similar literature review studies have adopted the Scopus database because of its robustness (Hong & Chan, 2014; Oliveira et al., 2018; Osei-Kyei & Chan, 2018). Lee et al. (2020) used the Scopus database to conduct a review on the blue economy linkages with sustainable development objectives. Our study on the blue economy in relation to small-scale fisheries used search terms including the blue economy, blue growth, blue justice, small-scale fisheries, artisanal fisheries, fisheries, inshore fisheries. The following are the search criteria: English language, only peer-reviewed papers (excluding book chapters, conference proceedings). The time span is from 2010 until 2021. The search term is as follows: ('Blue Economy', 'Blue Growth') AND ('small-scale fisheries' OR 'artisanal fisheries' OR 'fisheries' OR 'inshore fisheries').

The search did not consider date restriction; however, articles published with the key terms were within the last decade, ranging from 2010 to 2020. The search was conducted without any geographical consideration. Articles and documents published in languages other than English were excluded. Journal articles only were included, excluding conference papers, editorial reviews, book chapters, and notes.

The second aspect of the search strategy involved in-depth manual web retrieval of policy and operational documents of key global blue economy proponents (see Table 2.2). As a way of getting a global viewpoint, this part of the review focuses on international and multilateral stakeholders' documents and reports. The organisations were chosen based on their significance in global ocean governance and blue economy framing and dialogue (Lee et al., 2020). The documents were obtained through a google search of their websites. Out of the 20 different documents retrieved through the different websites, nine reports that clearly espoused the blue economy plans, strategies and objectives were selected for content analysis. National-level documents were excluded, therefore, how different countries framed small-scale fisheries in state-specific blue economy plans is beyond the scope of this review. Therefore, it must be emphasised that the retrieved journal articles together with the policy documents may not constitute an exhaustive list. It is possible our search missed journal articles and policy documents that were not explicitly labelled as 'blue economy,' but which cover the same topic

area. However, despite these limitations, this scoping review provides relevant preliminary evidence in the subject area. The Scopus database and the manual website search were conducted in September 2020 and updated in January 2021. Additionally, relevant articles from the literature were used to further expand our discussion.

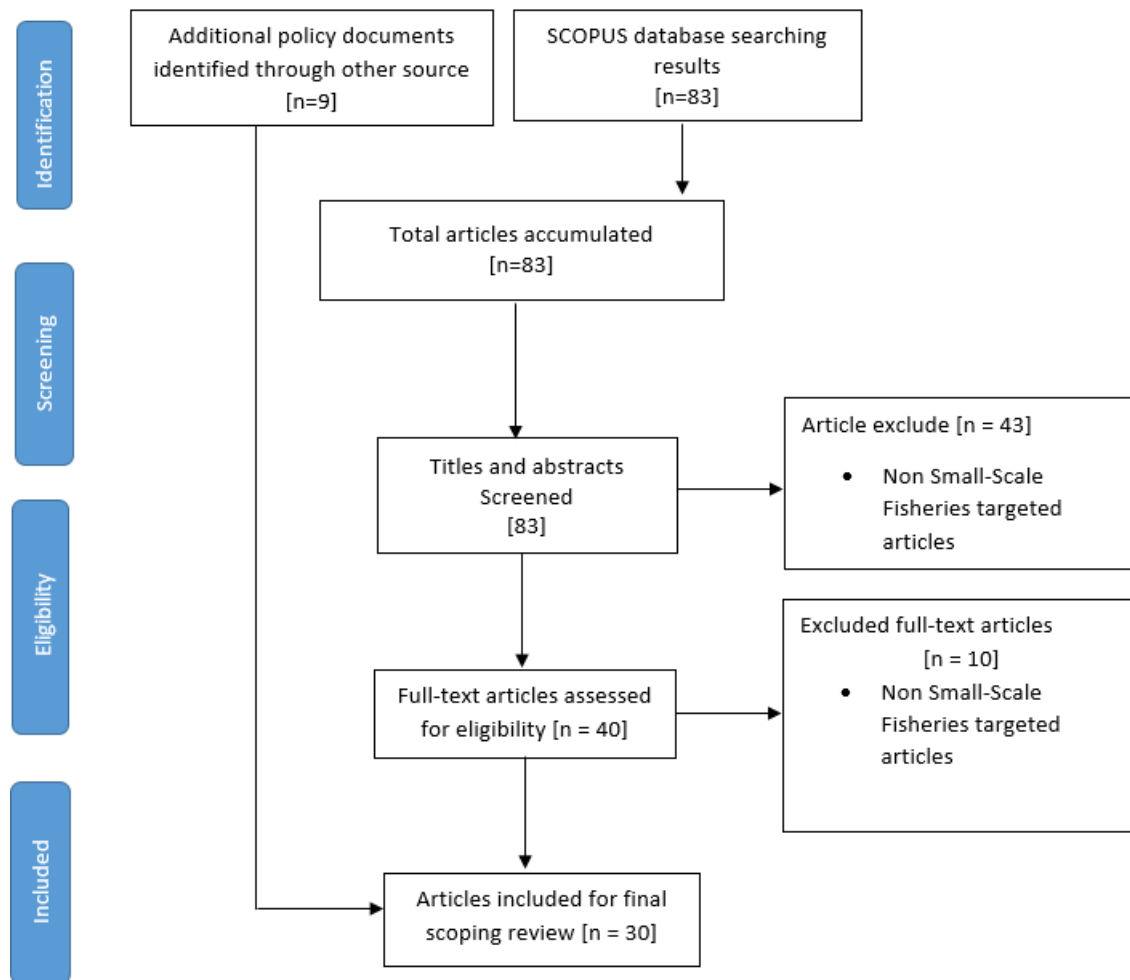


Figure 2. 2: The searching and screening process; adapted PRISMA extension for scoping reviews flow diagram

2.2.2 Search results selection and analysis

A total of 83 articles were initially retrieved through the Scopus search. Out of the 83 articles retrieved, 43 were omitted because the requirements for inclusion were not met by a preliminary analysis of the titles and abstracts. We excluded articles that delved into the 'blue economy' or 'blue growth' definition but did not concentrate on articulating the interactions between the blue economy and small-scale fisheries. The remaining 40 were read in full, seeking evidence of some

clear relationship, strategies, or interventions to express the interactions between the concept of blue economy and small-scale fisheries. As a result, 10 articles were further excluded, leaving 30 eligible articles. These 30 articles (Table 2.1) together with the web-sourced blue economy multilateral policy documents (Table 2.2) were then subjected to qualitative content analysis.

Table 2. 1: Final scholarly journal articles considered for analysis

Author (s)	Title	Year	Journal
Philipp et al	Blue Growth Potential in South Baltic Sea Region	2020	Transport and Telecommunication
Said & MacMillan	'Re-grabbing' marine resources: a blue degrowth agenda for the resurgence of small-scale fisheries in Malta	2020	Sustainability Science
Arias Schreiber et al	Swimming upstream: community economies for a different coastal rural development in Sweden	2020	Sustainability Science
Bogadóttir	Blue Growth and its discontents in the Faroe Islands: an island perspective on Blue (De)Growth, sustainability, and environmental justice	2020	Sustainability Science
Andriamahefazafy et al	The paradox of sustainable tuna fisheries in the Western Indian Ocean: between visions of blue economy and realities of accumulation	2020	Sustainability Science
McKinley et al	Charting the course for a blue economy in Peru: a research agenda	2019	Environment, Development and Sustainability
Nahuelhual et al.	Is there a blue transition underway?	2019	Fish and Fisheries
Da-Rocha et al	(Blue) Growth accounting in small-scale European Union fleets	2019	Marine Policy
Holma et al.	Comparing economic and biological management objectives in the commercial Baltic salmon fisheries	2019	Marine Policy
Cohen et al.	Securing a just space for small-scale fisheries in the blue economy	2019	Frontiers in Marine Science

Bennett	Navigating a just and inclusive path towards sustainable oceans	2018	Marine Policy
Hadjimichael	A call for a blue degrowth: Unravelling the European Union's fisheries and maritime policies	2018	Marine Policy
Harris et al.	Managing conflicts between economic activities and threatened migratory marine species toward creating a multiobjective blue economy	2018	Conservation Biology
Keen et al	Towards defining the Blue Economy: Practical lessons from pacific ocean governance	2018	Marine Policy
Techera	Supporting blue economy agenda: fisheries, food security and climate change in the Indian Ocean	2018	Journal of the Indian Ocean Region
Barbesgaard	Blue growth: savior or ocean grabbing?	2018	Journal of Peasant Studies
Pauly	A vision for marine fisheries in a global blue economy	2018	Marine Policy
Howard	Blue growth: Stakeholder perspectives	2018	Marine Policy
Boonstra et al	A sea of many colours -How relevant is Blue Growth for capture fisheries in the Global North, and vice versa?	2018	Marine Policy
Niiranen et al.	Global connectivity and cross-scale interactions create uncertainty for Blue Growth of Arctic fisheries	2018	Marine Policy
Hilborn & Costello	The potential for blue growth in marine fish yield, profit and abundance of fish in the ocean	2018	Marine Policy
Klinger et al.	The mechanics of blue growth: Management of oceanic natural resource use with multiple, interacting sectors	2018	Marine Policy
van den Burg et al.	Business case for mussel aquaculture in offshore wind farms in the North Sea	2017	Marine Policy
Grafeld et al.	Follow that fish: Uncovering the hidden blue economy in coral reef fisheries	2017	PLoS ONE

Jentoft	Small-scale fisheries within maritime spatial planning: knowledge integration and power	2017	Journal of Environmental Policy and Planning
Jiang et al	Evaluation of the carrying capacity of marine industrial parks: A case study in China	2017	Marine Policy
Mulazzani et al.	Blue Growth and the relationship between ecosystem services and human activities: The Salento artisanal fisheries case study	2016	Ocean and Coastal Management
Moore et al	Assessing the significance of the economic impact of Marine Conservation Zones in the Irish Sea upon the fisheries sector and regional economy in Northern Ireland	2016	Marine Policy
Silver et al.	Blue Economy and Competing Discourses in International Oceans Governance	2015	Journal of Environment and Development
Moffitt & Cajas-Cano	Blue Growth: The 2014 FAO State of World Fisheries and Aquaculture	2014	Fisheries

Source: Authors compilation (2021)

Table 2. 2: List of web retrieved policy documents and sources

Document name	Source
Africa Blue Economy Strategy	https://www.au-ibar.org
PRO BLUE - Healthy Oceans, Healthy Economies, Healthy Communities	https://www.worldbank.org/en/programs/problue/overview
Dongying Declaration on Building a Blue Economy through Integrated Coastal Management	http://pemsea.org/sites/default/files/dongying-declaration-on-building-blue-economy-through-integrated-coastal-management-july-2012.pdf
Towards an ocean-based Blue Economy: Moving Ahead with the	http://pemsea.org/sites/default/files/changwon-declaration_0.pdf

Sustainable Development Strategy for the Seas of East Asia	
High-level Pacific Blue Economy Conference	http://www.pidf.int/
The Oceans Economy: Opportunities and Challenges for Small Island Developing States	https://unctad.org/system/files/official-document/ditcted2014d5_en.pdf
The Ocean Economy in 2030	https://www.oecd.org
The EU Blue Economy Report. 2020	https://blueindicators.ec.europa.eu/published-reports_en
The FAO Blue Growth Initiative: A Strategy for the Development of Fisheries and Aquaculture in Eastern Africa	http://www.fao.org/

Source: Authors compilation (2021)

2.3 Review findings

2.3.1 Background of the reviewed scholarly papers

The journals from which most of the academic articles were retrieved are *Marine Policy* and *Frontiers in Marine Science*. Lee et al. (2020) also identified these journals for most publications on the blue economy and some aspects of the SDGs. The most widely used research approaches in the sample articles were expert opinions and reviews (46 percent) and case study (23 percent) (Figure 2.3). The other approaches identified were surveys data and mixed research methods. This may reflect the dominance of perspective and opinion pieces, with relatively few studies drawing on empirical data.

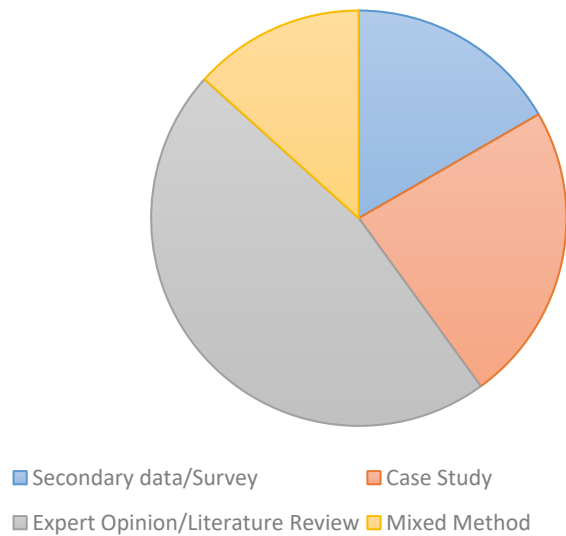


Figure 2. 3: Research methods and approaches

The trend in publication also suggests that since the Rio+20 discussions, research on the blue economy and small-scale fisheries has been consistently appearing each year for the last few years, with a concentration in 2018 (Figure 2.1). The distribution of papers by the country of authors' institutional affiliation was heavily weighted towards the Global North: United States (eight); the United Kingdom, Sweden and Norway (five); Canada (four); Australia (four), Italy (two) and South Africa (one). Most of the case studies identified in this scoping review discussed fisheries from countries in Europe (five), the Baltic (three), the Arctic (two), the Pacific (three), the Western Indian Ocean (one) and the Mediterranean (two).

2.3.2 Framing small-scale fisheries in the blue economy by some academic scholars

Retrieved articles provided some critical perspective and conceptualisation of the blue economy. The academic literature on the emerging blue economy provides varying conceptualisations, discourses, and frameworks that illustrate the unclear direction for small-scale fisheries.

2.3.2.1 Small-scale fisheries as driver of innovation

Blue economy places an emphasis on innovation through ocean sectors. Yet, these features are often overlooked when it comes to small-scale fisheries. Small-scale fisheries are largely neglected in discourses about the blue economy's potential for innovation.

By examining the conversations surrounding the different interpretations of the blue economy at the Rio+20 conference, Silver et al. (2015) identified four themes. First, environmental NGOs emphasise the inherent social and economic value and opportunities - 'ocean as natural capital.'

Second, private and intergovernmental agencies promoted ocean-based industries - 'the ocean as a good business.' Third, the Small Pacific Island Developing States championed the ocean as an integral part of their livelihoods and growth. Finally, the blue economy was promoted by small-scale fishery activists to underscore the importance of small-scale fisheries in providing nutrition and livelihoods (Silver et al., 2015). Most fishery activists used the Rio+20 conference as a neutral platform to promote and highlight the nutritional and livelihood importance of small-scale fisheries. Small-scale fisheries were also strongly advocated for by representatives from Small Island and Pacific States as an essential component of their social and economic livelihoods. In doing so, rights-based approaches are used, with an emphasis on recognising small-scale fishers' knowledge, participation in decision-making, and territorial access to ocean (Silver et al., 2015). In this context, proposals have been made to expand small coastal states' rights to ocean ecosystem benefits. The need to minimise continuous overexploitation of fisheries resources, tackle illegal fishing practises, and reevaluate the destructive activities of other ocean sectors, for example, were all emphasised. In a similar study by Voyer et al. (2018), blue economy imperatives are supported by policy interventions aimed at commodification, valuation and accounting, marine spatial planning (MSP), and the securitisation of the ocean environment. Similarly, the study offered four shades (i.e. competing interpretations/discourses) of the blue economy, with small-scale fisheries being framed only in the context of 'oceans as livelihoods' (Voyer et al., 2018).

Silver et al., (2015) and Voyer et al., (2018) observed other themes such as 'oceans as natural resources,' 'oceans as good enterprise' and 'oceans as a catalyst of innovation.' In this context, the livelihood potential of small-scale fisheries are espoused with some reference also made to their traditional ecological knowledge and cultural practices. However, both of these framings frequently minimise small-scale fisheries' importance as viable businesses, sources of innovation, and inextricable link to the natural ocean ecosystem.

2.3.2.2 Small-scale fisheries at the center of economic and political discourse

Another critical aspect of the blue economy is the emphasis focused on the economic growth potential of ocean industries, as well as national and regional political considerations. When discussing the blue economy's potential as a driver of economic growth and political aspiration, small-scale fisheries are sometimes downplayed in various blue economy framings.

Critical scholars have analysed the blue economy from a range of perspectives. For example, Childs and Hicks (2019) conducted an analysis of the blue economy narrative in Africa and concluded that international relations and the political imperatives of securing the ocean are a common narrative of Africa's blue economy (Childs & Hicks, 2019). Ocean resources are 'secured' in terms of economics, the environment, and politics since they are first built as economic objects of accumulation, then militarised as matters of strategic security, and finally monitored. This critical perspective contrasts with official constructs of the blue economy in Africa, such as the AU Commission (2015) and UNECA (2016). The study observed that frequently conflating illegal with 'unregulated' and 'unreported' is particularly problematic for small-scale fisheries (Childs & Hicks, 2019; see also Song et al., 2020). Because the majority of small-scale fisheries in developing countries are largely unregulated and unreported, labelling unregulated and unreported fishing as a threat to the blue economy risks jeopardising small-scale fisheries livelihoods. As a result, such blue economy narratives in Africa and some Small Island States may potentially legitimise the need to intervene, govern, and control the small-scale fisheries (Childs & Hicks 2019, p.333).

Brent et al. (2018) conclude that the blue economy hinges around three blue 'fixes' (Harvey, 2001) that aim to solve capitalist crises through temporary deferral and geographical expansion. First is the 'conservation fix,' which prioritises sustainability through large scale marine protected areas (MPAs). Secondly, the 'protein fix' emphasises the change to other sources of ingredients to remedy the failure of captured fisheries by growing large-scale, capital-intensive aquaculture. And finally, the 'energy and extractive fix', which is an argument that supports wind energy development and new deep-sea mineral mining activities with unknown consequences for the ocean environment and small-scale fisheries (Brent et al., 2018). The study concluded that these different blue economy narratives potentially threaten fisheries. More particularly, Brent et al., (2020) argue that the 'protein fix' narrative which places a premium on other types of large-scale fisheries, would effectively 'squeeze small-scale capture fishing out', whereas industrial fisheries are 'well-positioned' (p.31).

In an attempt to analyse the blue economy term's use in the Pacific region, Dornan et al. (2018) found no specific common understanding. However, fisheries management in the blue economy is often discussed in the Pacific in line with demands for resource sovereignty and self-determination (Dornan et al., 2018). The study argued that the blue economy is used to support varied viewpoints and agendas, with most employing the blue economy to articulate

developmental approaches and trajectories more aligned with the Pacific context and priorities (Dornan et al., 2018; Keen et al., 2018). Keen et al. (2018), for example, identify five core threads in a framework for the blue economy in the Pacific. These are 'ecosystem resilience, economic sustainability, community engagement, institutional integration, and technical capacity' (p.335). The framework also articulates 'institutional arrangements' and 'technological capacity' as the catalysts to propel the 'ecological, economic, and social sustainability' in the blue economy (Keen et al., 2018, p.335). The study posits that the Pacific Blue Economy tends to neglect many socio-political elements related to power, agency and gender therefore risks undermining value chains of small-scale fisheries (Keen et al., 2018).

Some academics believe that the exclusion of fisheries in general, and small-scale fisheries in particular, from some blue economy frameworks is overly narrow (Hadjimichael, 2018). Scholars, for example, have criticised the EU for excluding capture fisheries from blue economy sectors due to low growth potential, arguing that the EU has failed to recognise the different growth potentials in fisheries (Cisneros-Montemayor et al., 2019). In contrast to extensive growth, which focuses on expanding fishers, fishing grounds, and catch volumes, Boonstra et al. (2018) emphasised that intensive growth allows for innovation, specialisation, and value addition. As a result, developing more intensive growth models in the blue economy such as adding value through certification, using modern technology for post-harvest management to process and more efficient use of inputs has the potential to yield significant gains. Intensive growth trajectory in small-scale fisheries sector aligns with the blue economy goals of achieving economic growth while also meeting the sustainability objectives (Boonstra et al., 2018). For instance, Howard (2018) observed that emerging innovations in small-scale fisheries in Africa simultaneously secure local fishers more value and achieve sustainability of fisheries resources. The academic discourse paints an uncertain future for small-scale fisheries in the emerging blue economy. Overall, while the various themes, shades, fixes, and narratives highlight how small-scale fisheries are frequently recognised for their livelihood importance, several other significant flexible potentials and values such as food security, employment, self-identity, kinship, household, and community linkages are ignored.

2.3.3 Framing small-scale fisheries in the blue economy by multilateral and intergovernmental organisations

This section analyses nine different reports and policy documents of some of the blue economy's key proponent organisations - including the European Union, the World Bank and United Nations

agencies - to understand how the concept of the blue economy has been practically operationalised and implemented (Table 2.3), and how small-scale fisheries have been represented. While the study does not aim to provide a global picture, these documents were considered for content analysis because they provided information that explain different conceptualisations of the blue economy at different scale and geographical locations.

The United Nations Conference on Trade and Development (UNCTAD) defines the blue economy as an ocean economy that aims at improving 'human well-being and social equity, while significantly reducing environmental risk and ecological scarcities' (UNCTAD, 2014, p. 2). The ocean economy is defined as the sum of ocean-based industries' economic activities and the assets, goods, and services of marine ecosystems (OECD, 2016), and key implementation mechanisms are integrated coastal zone management, marine spatial planning and marine protected areas. UNCTAD, for example, outlines 'Ocean Economy' as a new mandate aimed at assisting developing countries in identifying opportunities and challenges in the ocean economy. They aimed to provide assistance to national and regional institutions in developing trade strategies that promote the development of emerging ocean sectors. While UNCTAD does not provide a clear roadmap for the role of small-scale fisheries in its ocean economy, fisheries subsidies, trade policies, and regulation are high on its priority list.

The Food and Agriculture Organization (FAO) approach to the blue economy moves more towards livelihoods. The FAOs, 'achieving Blue Growth' plan aims to achieve sustainable and socio-economic management of living aquatic resources and efficient fisheries and aquaculture, trade, and food systems (FAO, 2018). Small-scale fisheries are prominently discussed in the FAO blue economy strategy that underscores their economic significance and importance for livelihoods. FAO presents the blue economy as an inclusive and participatory approach to ensure food security and decent work through sustainable fisheries management and aquaculture (FAO, 2018). It is worth noting that the FAO document provides examples of blue economy initiatives all in developing countries such as Africa, Pacific and the Caribbean. This trend in the FAO blue economy pursuit stresses the emphasis on Pacific and Small Island States, Africa, and the Caribbean, where small-scale fisheries continue to provide substantial livelihood and well-being. The FAO has a pro-poor development focus, hence has an emphasis on increasing the visibility of small-scale fisheries, particularly in developing countries with potential for fisheries growth (Boonstra et al., 2018).

The World Bank considers the blue economy as sustainable and integrated development of economic sectors in healthy oceans (WorldBank, 2020). The Bank implements the blue economy under a program called the 'PROBLUE,' - 'Healthy Oceans, Healthy Economies, and Healthy Communities'. PROBLUE is a multi-donor umbrella fund that promotes safe and prosperous seas, supports the SDG 14 (life under the sea) and seeks to sustainably increase the living conditions of the poor (World Bank, 2020). The World Bank blue economy strategy focuses on four areas: 1) fisheries and aquaculture, 2) marine pollution and plastic, 3) sustainable development of key sectors including tourism, maritime transport and offshore renewable energy, and 4) capacity building (World Bank, 2020). Management of fisheries and aquaculture is one of the World Bank's blue economy themes. However, the PROBLUE initiative's emphasis on integrated economic growth suggests that it places a greater emphasis on the creation of economic value than on the creation of social and cultural values. While the PROBLUE fund recognises the value of livelihoods and communities, it provides no clear pathway on small-scale fisheries.

The European Union (EU) characterises the blue economy as the driving force behind Europe's recovery from the post-financial crisis through inclusive growth and job creation. The EU conceptualises the blue economy in growth sectors such as aquaculture, coastal tourism, marine biotechnology, ocean energy and seabed mining (Commission, 2020). The EU argues that the blue economy framework provides the opportunity to reinvigorate and improve the competitiveness of traditional growth sectors such as maritime transport, coastal and maritime tourism and oil and gas exploration, and unlock the untapped potential of emerging growth sectors in the maritime sector, with the blue economy as the engine of economic growth and job creation (Commission 2020). Surprisingly, the EU blue economy thematic objectives fail to mention either fisheries in general or small-scale fisheries in particular, something that academia, environmental NGOs and small-scale fisher organisations have strongly criticised (Barbesgaard, 2018; Brent et al., 2018; Hadjimichael, 2018; Jentoft, 2020). However, aquaculture is highly promoted as an important emerging growth sector in the blue economy strategy of the EU.

Among various regional commissions, such as those in Asia, the blue economy concept is also being produced in policy documents. In the 2011, Dongying Declaration, a network of local governments in the Partnerships in Environmental Management for the Seas of East Asia (PEMSEA) committed to building a blue economy through vigorous Integrated Coastal

Management (ICM) policies. The Changwon Declaration of 2012 officially defined the blue economy as a 'practical ocean-based economic model using green infrastructure and technologies, innovative financing mechanisms and proactive institutional arrangements for meeting the twin goals of protecting our oceans and coasts and enhancing its potential contribution to sustainable development, including improving human well-being and reducing environmental risks and ecological scarcities' (Changwon Declaration, 2012, p.1). In East Asia also, while small-scale fisheries are not clearly discussed, PEMSEA proposed equitable and sustainable fisheries management, focusing on habitat conservation and marine protected areas, and rebuilding and maintaining fish stocks at sustainable levels (Changwon Declaration, 2012).

In the Pacific, the blue economy also reflects national development plans (Dornan et al., 2018). The Pacific Islands Development Forum (PIDF) emerging consensus among the Pacific countries is that ocean economic activity must be sustainable to be referred to as a blue economy. Through the PIDF (2021), the Blue Economy concept means (i) sustainability; (ii) equity; (iii) creation of genuine prosperity and well-being for all; (iv) improving the natural world; (v) inclusive and participatory decision making; (vi) accountability; (vii) building economic, social and environmental resilience; (viii) delivering sustainable production and judicious use of resources; (ix) investing for the future. The Pacific Community (SPC) does not provide its own blue economy plan, but it has partnered with regional organisations to combat climate change through the Blue Pacific Initiative. The Pacific Small Island Developing States (PSIDS) through various regional platforms emphasis the deep-rooted bond between the peoples of the Pacific, the land, the ocean and biodiversity (Silver et al., 2015). According to the Pacific Fisheries Forum Agency (FFA), the offshore fisheries sector in the Pacific countries encapsulates many blue economy concepts (FFA, 2017). In contrast, it is well-known that the inshore fisheries are the foundation of food and nutritional security in the Pacific (PIDF, 2021). These descriptions and conceptualisation by the FFA reflect the emphasis on revenue generation industries at the political level. The FFA orientation towards shared tuna resources undermines the representation of small-scale fisheries in the blue economy pursuit. As Andriamahefazafy et al. (2019) observed in coastal nations in the Western Indian Ocean (WIO), the current emphasis on the growth-driven tuna fisheries model undermines sustainable practises in the blue economy.

The blue economy is embraced and promoted by the African Union (AU) as the 'new frontier of the African renaissance' (AU-IBAR, 2019). The *Agenda 2063* of the AU, which constitutes the continent's future development plan, incorporates the blue economy. The United Nations

Economic Commission for Africa has developed a blue economy plan for Africa. They define the blue economy as crucial for the transformation, economic growth, and development of Africa (UNECA, 2016). The blue economy paradigm in Africa diverges from global usage by encompassing not just ocean sectors but also lakes and rivers, highlighting the continent's significant freshwater resources. However, for the broader concept of the blue economy in Africa to effectively promote sustainability, it must be better aligned with the actual circumstances that shape local livelihoods, including fisheries. This contextual consideration is crucial in realizing a sustainable blue economy within the African context. The blue economy sectors in Africa consists of fisheries, aquaculture, tourism, transport, ports, coastal mining and energy, all considered emerging economic opportunities (UNECA, 2016). The continent heightened its commitment to the blue economy agenda by hosting the first-ever global sustainable blue conference in 2018 in Nairobi, Kenya. Already, individual countries within Africa are pursuing development and conservation policies. Notable examples in the literature include the Debt Restructuring for Marine Conservation and Climate Adaptation Program by Seychelles and South Africa's Operation Phakisa (Silver & Campbell, 2018). Even though small-scale fisheries constitute an important source of animal protein in most African countries, the UNECA's blue economy strategy and The *Agenda 2063* of the African Union, provides no clear direction for small-scale fisheries management. The FAO blue growth strategy, which is being implemented in East Africa, is the only clear blue economy plan that focuses heavily on small-scale fisheries (Bartley et al., 2018). Initiatives under the description of blue economy in Africa generally pay less attention to small-scale fisheries (Okafor-Yarwood et al., 2020).

Table 2. 3: Summary of selected blue economy narratives from policy documents

Organisation	Definition	Focus Areas	Implication for Small-Scale Fisheries
UNCTAD (2016)	It aims to improve human well-being and social equity, while significantly reducing environmental risks and ecological scarcities	Sustainable and inclusive development, technological capacity, innovation, and policy and regulation	- The focus on trade subsidies and trade regulation may extend beyond small-scale fisheries, despite the provision for social

			components in its definition
OECD (2016)	The sum of the economic activities of ocean-based industries, together with the assets, goods and services provided by marine ecosystems.	Shipping, Industrial fishing and aquaculture, ports and shipbuilding activities, offshore and deep-sea oil and gas, offshore wind energy, marine biotechnology, maritime and coastal tourism, marine manufacturing and construction, maritime safety and surveillance	- Economic activities are prioritised over social and cultural values - MPA and MSP approach may undermine small-scale fisheries
EU (2020)	A long term strategy to support sustainable growth in the marine and maritime sectors as a whole.	Aquaculture, coastal tourism, marine biotechnology, ocean energy, seabed mining	- Fisheries and small-scale fisheries are not considered growth sectors - Provides for increased interest in aquaculture and mariculture
FAO (2018)	Aim to maximize economic and social benefits while minimising environmental degradation across fisheries and aquaculture sectors.	Fisheries and aquaculture management, sustainable value chains - markets and products and access to trade, food security and nutrition, decent work and livelihoods and community resilience	- The pro-poor approach supports more small-scale fisheries visibility - The emphasis on developing countries allows for the expansion of small-scale fisheries

World Bank (2020)	Sustainable use of ocean resources for economic growth, improved livelihoods and jobs, and ocean ecosystem healthy	Aquaculture, renewable energy, maritime transport, tourism, waste management, climate change	- The market-based PRO-BLUE fund places a greater emphasis on economic value and therefore may underplay contributions of small-scale fisheries.
PEMSEA (2012)	A set of environmentally and socially sustainable commercial activities, products, services and investments dependent on and impacting coastal and marine resources	Fisheries & aquaculture, ports, shipping and marine transport, tourism, resorts and coastal development, oil & gas, coastal manufacturing, seabed mining, renewable energy, marine biotechnology, marine technology & environmental services	- For the next decade, focuses on commercial activities, services and investment that may overlook small-scale fisheries values
PIDF (2017)	Ocean economic activities that are carried out sustainably	Oceanic fisheries, marine and coastal tourism, coastal fisheries and community livelihoods, marine renewable energy, deep-	- In spite of the overwhelming contribution of inshore small-scale to region, offshore fisheries is more prominent within the

		sea mining, blue carbons and afforestation	Pacific blue economy
AU (2019)	A new frontier of African renaissance-inclusive and sustainable blue economy that significantly contributes to Africa's transformation and growth	Shipping and port, fisheries and aquaculture, energy, mineral resources and oil and gas, and innovative industries, coastal and marine tourism, blue carbon & other ecosystem services and resilience	- Small-scale fisheries constitute a traditional sector in Africa, therefore Africa's blue economy emphasis on 'new frontier' will need to clearly define small-scale fisheries.

Source: Authors Compilation (2021)

2.4 Discussion

2.4.1 Implications of various blue economy ideological positions for small-scale fisheries

The blue economy concept is spread across a range of ideological voices, positions and perspectives that become clear only in the context of its use by the multilateral practitioners or the academic scholars. As a result, depending on how or who uses the concept, it is regarded as a guiding principle, policy agenda, governance approach, narrative, or economic ideology (Brent et al., 2018; Cisneros-Montemayor et al., 2019; Silver et al., 2015; Voyer et al., 2018). The diversity of blue economy conceptualisations suggests the concept is a 'buzzword' (Cornwall, 2007; Hadjimichael, 2018). Buzzwords can be used to coordinate the actions of multiple actors who at the same time can disagree over the actual meaning (Bueger, 2015).

Cornwall notes that 'in the struggles for interpretive power that characterise the negotiation of the language of policy, buzzwords shelter multiple agendas, providing room for manoeuvre' (p.474). Academics observe a diversity of potential pathways for small-scale fisheries in the blue economy, both negative and positive. On the other hand, small-scale fisheries receive little attention in blue economy framings of multilateral stakeholders and practitioners. For instance, small-scale fisheries are given some level of visibility in cases where the interests of stakeholders align towards more pro-poor development interest, communities, food supplies, and culture, as in the case of the FAO. In the Pacific where they have a more national and regional focus of the

blue economy, various stakeholders established the strong connection of the Pacific to the ocean. However, compared to industrial tuna fisheries, the overwhelming importance of small-scale fisheries in the Pacific is less emphasised in the blue economy framing. Global multilateral organisations, such as the EU and the OECD prioritise economic activities with a greater emphasis on economic value over social and cultural values that may be associated with small-scale fisheries. In the case of regional and multilateral bodies, proposals for marine protected areas, marine spatial planning, ecosystem-based management, integrated coastal management, industrialisation and quantification, as well as environmental conservation have been put forth, with innovation on top of the agenda. As a result, fisheries, for example, are often listed by key global advocates in the blue economy framing, but this is often done to reflect or support aquaculture and other forms of industrial fisheries rather than small-scale fisheries. This approach of framing small-scale fisheries raises fundamental issues regarding sustainable and equitable ocean management (Cisneros-Montemayor et al., 2021).

A second key feature of buzzwords is that there are significant disconnects between the abstract concept and what it means in practice (Cornwall 2007, p 472). Among multilateral organisations, different groups employ or interpret the blue economy to influence different agendas with diverse proposals for ocean and coastal development and management. For example, at the most general perspective level, global multilateral stakeholders, such as the FAO, portray the blue economy as a particular ideal-typical proposal for fisheries, including small-scale fisheries. However, in practice, the blue economy combines diverse proposals for implementation that may not consider or reflect the values of small-scale fisheries. Recognising small-scale fisheries livelihoods, rights, ideas, and knowledge in ocean management and decision-making is essential for blue economy planning and development (Bennett et al. 2021). For instance, the EU promote costing the natural use and non-use value and capital of the ocean ecosystem through commodification, accounting and valuation (Voyer et al., 2018). While marine spatial planning is used to support demarcated and permitted ownership and uses of ocean space through zoning (Voyer et al., 2018). Other implementation approaches like securitisation promotes militarisation and policing of the maritime space to safeguard blue economy development and businesses (Childs & Hicks, 2019). Payment for ecosystem services (PES) involves valuing the ecosystem's carbon storage capacity and remunerating the right owners for their environmental practices (McAfee, 2012). All of these approaches to implementing the blue economy pose a potential threat to small-scale fisheries through ocean and coastal grabbing, marginalisation and dispossession (Barbetsgaard,

2018; Bennett et al., 2015). As a result, buzzwords may have one meaning at an abstract level but a different meaning in reality. These features of a buzzword reflect precisely the emerging characteristics of the blue economy concept. These characteristics of the blue economy exposes the concept to political and ideological manipulations without accountability which may further jeopardise sustainable ocean management objective. Yet, managing the ocean sustainably is one of the key indicators that determine whether the blue economy can create economic growth through fisheries and tourism (Bhattacharya & Dash, 2021).

2.4.2 Small-scale fisheries' social aspects and uniqueness in the blue economy

Among the many uncertainties and concerns raised by the academic articles is the need to address social aspects of small-scale fisheries, such as their cultural and traditional values, dynamic and contextual nature, and inextricable links with communities' social networks, such as kin, gender, status, and livelihoods (Cisneros-Montemayor et al., 2019; FAO, 2015). In general, the social dimensions in coastal fisheries management design, development, and governance that must be highly considered are well-being, inclusion, equity, social licence, and livelihoods (Bennett et al., 2021). This is particularly important because, depending on how these dimensions are handled, small-scale fisheries may be set up for failure or success. As a result, properly operationalizing and balancing the social dimensions specific to small-scale fisheries in most national, regional, and multilateral blue economy aspirations is critical in protecting small-scale fisheries from negative distributional externalities and ensuring their long-term sustainability.

In the majority of the regional and global multilateral blue economy objectives reviewed, the various forms of fisheries are homogenously conceptualised under the theme of 'fisheries and aquaculture', thus subsuming small-scale fisheries into this narrow category. Therefore, small-scale fisheries are treated based on general governance and growth principles and models - at the cost of understanding the diversity of small-scale fisheries across various jurisdictions, and their distinctiveness from other fisheries. This way of framing small-scale fisheries in most policy documents further compounds the problems of small-scale fisheries since their importance is often overlooked. Moreover, this approach of framing small-scale fisheries often fail to distinguish and acknowledge their diversity, complexity, and dynamics in the design of ocean and coastal management policies and development projects (Johnson, 2006).

Small-scale fisheries are intertwined in social, ecological, historical values, and networks of coastal economies (Johnson, 2018). In terms of these social, economic and ecological

characteristics, small-scale fisheries are different from other fisheries, and will have diverse capacities to respond to policy and practical transformations, such as those underpinned by the blue economy (Pauly, 2018). As a result, it is impossible to prescribe a set of interventions that will work in all cases through time and space. For example, small-scale fisheries are entwined with cultural, spiritual, and traditional values, have contextual dynamics and specificity, and are inextricably linked to community social networks such as kin, gender, status, and livelihoods (Johnson, 2018). In terms of inclusiveness, which is important for fisheries and ocean management, women fishers have been very involved in the small-scale fisheries sector relative to the industrial fisheries sector. Thus, small-scale fisheries provide an opportunity to empower women at the community level, which aligns with the blue economy's objective for social and economic inclusion within the broader ocean governance framework. Moreover, while the classification of small-scale fisheries may vary across jurisdictions, their social and economic organisation tends to contrast with industrial fisheries, with the key dimensions of difference being the vessel size, spatial patterns of fishing (inshore vs offshore), ownership and social relations of production (for example, kin-oriented crew hiring versus corporate recruiting). Other scholars have attempted to provide explicit employment data, livelihood and ecological attributes that attests to the continuum of difference between small-scale fisheries and other fisheries categories (see Berkes, 2001; Johnson, 2006; Thomson, 1980). Yet, these stark difference between small-scale and other fisheries are less mentioned in blue economy policy frameworks.

The scholarly literature demonstrated how the social, economic and ecological characteristics of small-scale fisheries may actually be more socially and ecologically sustainable than other fisheries in the blue economy (Pauly, 2018). For instance, small-scale fisheries are destined exclusively for human consumption as opposed to industrial fisheries, where about 25 percent is reduced to fish meal, much of which is used to feed other animals (Pauly, 2018). Besides, small-scale fisheries employ traditional fishing techniques based on fish behaviour and use fishing boats with low fuel capacity, against the fuel-intensive fisheries driven mostly by the industrial operations and trawlers (Parker et al., 2018). These attributes of small-scale fisheries align with blue economy concepts and narratives centred around long-term sustainable management of ocean and coastal resources. They are arguably better-suited to provide for food security for the rural poor than industrial fisheries or mariculture (Hall et al., 2013). Most industrial fisheries products are sold in distant international markets to customers who can afford other protein substitutes compared to poor rural areas with limited options and capacity albeit some are sold in

local markets. This, once again, raises moral issues about the fair and just allocation of natural resources for human livelihood, as enshrined in the blue economy and discussed under the blue justice literature (Bennett et al., 2021).

The blue economy proponents assumed that the social elements could be accomplished automatically with economic growth from the ocean economy sectors. Furthermore, governance and development proposal for fisheries in the blue economy is assumed to be a one-size-fit for all fisheries, including small-scale fisheries. These above naive assumptions and oversights emphasised how the blue economy in its current framing is more market-driven than socially driven. These voices and dimensions in small-scale fisheries must be set in parallel to counteract and contest the predominant emphasis of the blue economy discourse on industrial fisheries and aquaculture. Small-scale fisheries practitioners, activists, and researchers must expand on these narratives in the blue economy in order to legitimise social, ecological, and equity concerns, which are considered 'enabling conditions' for a successful blue economy (Cisneros-Montemayor et al., 2021). The most pressing governance and management concerns for a sustainable and successful ocean development across jurisdictions are likely the broad gaps in these essential 'enabling conditions' for an egalitarian blue economy (Cisneros-Montemayor et al., 2021). By 'plugging policy gaps', such as addressing social and environmental issues, shifting the economic focus from GDP growth to clear development objectives including poverty reduction and livelihood diversification, the blue economy is more likely to produce the desired results (Voyer et al., 2020).

2.5 Conclusion

This paper has reviewed how academic scholars and regional and multilateral organisations view the blue economy concept in relation to small-scale fisheries. We have shown that, depending on the interest, scope and context, the blue economy interpretation varies across a range of ideological voices, positions and perspectives. The central ocean governance debate remains to reconcile the blue economy aspiration with the social and cultural values of small-scale fisheries. This debate may present a more significant challenge in the future for proper ocean governance within the blue economy framework. As shown in this review, multilateral documents are crafted in a manner that seems to largely ignore small-scale fisheries in the blue economy future. Therefore, these growing blue economy imperatives must invoke more in-depth research into its pros and cons for specific groups, especially small-scale fisheries. The emerging socioeconomic, ecological, political, and social equity issues raised by academia require special attention in order

to insure small-scale fisheries' long-term viability in the blue economy. Globally, small-scale fishers and local coastal communities in developing countries depend on the ocean and coastal ecosystem for their social well-being and livelihood (Johnson, 2018). As a result, it is crucial to guarantee small-scale fisheries an equal physical, economic, and political involvement in the blue economy future. The blue economy will only contribute towards achieving the sustainable development goals when the social dimensions and specific characteristics of small-scale fisheries are considered and addressed more closely.

If the blue economy's diversity of actors - spanning both vertical and horizontal scales - overlooks or fails to take advantage of small-scale fisheries diversity, complexity, and dynamism, then its governability would be undermined and lopsided. The blue economy should strive for governance interaction by explicitly acknowledging the diversity and complexity of small-scale fisheries and strengthening their capacity to clarify those particularities within the governability system. A significant step forward is for countries to pursue blue economy prospects by first assessing how to contextualise them within their existing governing systems and globally influential policy frameworks (Voyer et al., 2020). Pursuing the blue economy in tandem with the UN Sustainable Development Goals and the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries, for example, would secure and better recognise the role of small-scale fisheries in the blue economy (Isaacs, 2019).

2.5.1 Acknowledgement

We thank the two anonymous reviewers and the editor whose comments improved the paper.

2.5.2 Ethics approval and consent to participate

Not applicable.

2.5.3 Funding

This research is supported by an Australian Government Research Training Program Scholarship as part of the first author's PhD.

References

- Ahinkorah, B. O., Kang, M., Perry, L., & Brooks, F. (2020). Prevention of adolescent pregnancy in Anglophone sub-Saharan Africa: a scoping review of national policies. *International Journal of Health Policy and Management*.
<https://doi.org/10.34172/IJHPM.2020.185>
- Andriamahefazafy, M., Bailey, M., Sinan, H., & Kull, C. A. (2020). The paradox of sustainable tuna fisheries in the Western Indian Ocean: between visions of blue economy and realities of accumulation. *Sustainability Science*, 15(1), 75-89.
<https://doi.org/10.1007/s11625-018-0551-8>
- Anuga, S. W., Chirinda, N., Nukpezah, D., Ahenkan, A., Andrieu, N., & Gordon, C. (2020). Towards low carbon agriculture: Systematic-narratives of climate-smart agriculture mitigation potential in Africa. *Current Research in Environmental Sustainability*, 2, 100015. <https://doi.org/10.1016/j.crsust.2020.100015>
- Arias Schreiber, M., Wingren, I., & Linke, S. (2020). Swimming upstream: community economies for a different coastal rural development in Sweden. *Sustainability Science*, 15(1), 63-73. <https://doi.org/10.1007/s11625-019-00770-0>
- AU-IBAR. (2019). African Blue Economy Strategy. Nairobi, Kenya. https://www.aubar.org/sites/default/files/2020-10/sd_20200313_africa_blue_economy_strategy_en.pdf
- Barbesgaard, M. (2018). Blue growth: savior or ocean grabbing? *Journal of Peasant Studies*, 45(1), 130-149. <https://doi.org/10.1080/03066150.2017.1377186>
- Bartley, D., Menezes, A., Metzner, R., & Ansah, Y. (2018). The FAO Blue Growth Initiative: Strategy for the Development of Fisheries and Aquaculture in Eastern Africa. *FAO Fisheries and Aquaculture Circular* (C1161), I-55.
- Bennett, N. J. (2018). Navigating a just and inclusive path towards sustainable oceans. *Marine Policy*, 97, 139-146. <https://doi.org/10.1016/j.marpol.2018.06.001>
- Bennett, N. J., Blythe, J., White, C. S., & Campero, C. (2021). Blue growth and blue justice: Ten risks and solutions for the ocean economy. *Marine Policy*, 125, 104387. <https://doi.org/10.1016/j.marpol.2020.104387>
- Bennett, N. J., Cisneros-Montemayor, A. M., Blythe, J., Silver, J. J., Singh, G., Andrews, N., . . . Finkbeiner, E. M. (2019). Towards a sustainable and equitable blue economy. *Nature Sustainability*, 2(11), 991-993. <https://doi.org/10.1038/s41893-019-0404-1>
- Berkes, F. (2001). *Managing small-scale fisheries: alternative directions and methods*: IDRC.
- Bhattacharya, P., & Dash, A. K. (2021). Determinants of blue economy in Asia-Pacific island countries: A study of tourism and fisheries sectors. *Ocean and Coastal Management*, 211. <https://doi.org/10.1016/j.ocecoaman.2021.105774>

- Bogadóttir, R. (2020). Blue Growth and its discontents in the Faroe Islands: an island perspective on Blue (De)Growth, sustainability, and environmental justice. *Sustainability Science*, 15(1), 103-115. <https://doi.org/10.1007/s11625-019-00763-z>
- Boonstra, W. J., Valman, M., & Björkvik, E. (2018). A sea of many colours - How relevant is Blue Growth for capture fisheries in the Global North, and vice versa? *Marine Policy*, 87, 340-349. <https://doi.org/10.1016/j.marpol.2017.09.007>
- Brent, Z. W., Barbesgaard, M., & Pedersen, C. (2018). The Blue Fix: What's driving blue growth? *Sustainability Science*, 1-13. <https://doi.org/10.1007/s11625-019-00777-7>
- Bueger, C. (2015). What is maritime security? *Marine Policy*, 53, 159-164. <https://doi.org/10.1016/j.marpol.2014.12.005>
- Childs, J. R., & Hicks, C. (2019). Securing the blue: political ecologies of the blue economy in Africa. *Journal of Political Ecology*, 26(1), 323-340. <https://doi.org/10.2458/v26i1.23162>
- Cisneros-Montemayor, A. M., Moreno-Báez, M., Reygondeau, G., Cheung, W. W., Crosman, K. M., González-Espinosa, P. C., ... & Ota, Y. (2021). Enabling conditions for an equitable and sustainable blue economy. *Nature*, 591(7850), 396-401. <https://doi.org/10.1038/s41586-021-03327-3>
- Cisneros-Montemayor, A. M., Moreno-Báez, M., Voyer, M., Allison, E. H., Cheung, W. W., Helsing-Lewis, M., . . . Ota, Y. (2019). Social equity and benefits as the nexus of a transformative Blue Economy: A sectoral review of implications. *Marine Policy*, 109, 103702. <https://doi.org/10.1016/j.marpol.2019.103702>
- Cohen, P., Allison, E. H., Andrew, N. L., Cinner, J. E., Evans, L. S., Fabinyi, M., . . . Hughes, T. P. J. F. i. M. S. (2019). Securing a just space for small-scale fisheries in the blue economy. 6, 171. <https://doi.org/10.3389/fmars.2019.00171>
- Commission, E. (2020). The EU Blue Economy Report. 2020. Publications Office of the European Union. Luxembourg.
- Cornwall, A. (2007). Buzzwords and fuzzwords: deconstructing development discourse. *Development in Practice*, 17(4-5), 471-484. <https://doi.org/10.1080/09614520701469302>
- Da-Rocha, J. M., Guillen, J., & Prellezo, R. (2019). (Blue) Growth accounting in small-scale European Union fleets. *Marine Policy*, 100, 200-206. <https://doi.org/10.1016/j.marpol.2018.11.036>
- Declaration, C. (2012). Towards an ocean based blue economy: Moving ahead with the sustainable development strategy for the seas of east Asia. *The Fourth Ministerial Forum On The Sustainable Development Strategy For The Seas of East Asia*. <https://www.pemsea.org/publications/agreements-and-declarations/changwon-declaration-toward-ocean-based-blue-economy-moving> (accessed 10 May 2021)

- Dornan, M., Morgan, W., Newton Cain, T., & Tarte, S. (2018). What's in a term? 'Green growth' and the 'blue-green economy' in the Pacific islands. *Asia & the Pacific Policy Studies*, 5(3), 408-425. <https://doi.org/10.1002/app5.258>
- Entman, R. M. (1993). Framing: Toward clarification of a fractured paradigm. *Journal of Communication*, 43(4), 51-58. <https://doi.org/10.1111/j.1460-2466.1993.tb01304.x>
- Falagas, M. E., Pitsouni, E. I., Malietzis, G. A., & Pappas, G. (2008). Comparison of PubMed, Scopus, web of science, and Google scholar: strengths and weaknesses. *The FASEB Journal*, 22(2), 338-342. <https://doi.org/10.1096/fj.07-9492LSF>
- FAO (2015). Voluntary guidelines for securing sustainable small-scale fisheries in the context of food security and poverty eradication. *Rome: Food and Agriculture Organization of the United Nations*.
- FAO (2018). Achieving blue growth: Building vibrant fisheries and aquaculture communities. *FAO Fisheries and Aquaculture Department*.
- FFA (2017). Blue economy in the pacific region. Case study - the sustainable management of tuna resources. https://www.europarl.europa.eu/intcoop/acp/2017_yanuatu/pdf/blue-economy.pdf (accessed 13 December 2020)
- Grafeld, S., Oleson, K. L. L., Teneva, L., & Kittinger, J. N. (2017). Follow that fish: Uncovering the hidden blue economy in coral reef fisheries. *PLoS ONE*, 12(8). <https://doi.org/10.1371/journal.pone.0182104>
- Hadjimichael, M. (2018). A call for a blue degrowth: Unravelling the European Union's fisheries and maritime policies. *Marine Policy*, 94, 158-164. <https://doi.org/10.1016/j.marpol.2018.05.007>
- Hall, S. J., Hilborn, R., Andrew, N. L., & Allison, E. H. (2013). Innovations in capture fisheries are an imperative for nutrition security in the developing world. *Proceedings of the National Academy of Sciences*, 110(21), 8393-8398. <https://doi.org/10.1073/pnas.1208067110>
- Harris, L. R., Nel, R., Oosthuizen, H., Meÿer, M., Kotze, D., Anders, D., . . . Bachoo, S. (2018). Managing conflicts between economic activities and threatened migratory marine species toward creating a multiobjective blue economy. *Conservation Biology*, 32(2), 411-423. <https://doi.org/10.1111/cobi.12992>
- Harvey, D. (2001). Globalization and the 'spatial fix'. *geographische revue. Zeitschrift für Literatur und Diskussion* 3 (2), 23-30.
- Hassan, D., & Alam, A. (2019). Institutional arrangements for the blue economy: marine spatial planning a way forward. *Journal of Ocean and Coastal Economics*. <https://doi.org/10.15351/2373-8456.1107>

- Hilborn, R., & Costello, C. (2018). The potential for blue growth in marine fish yield, profit and abundance of fish in the ocean. *Marine Policy*, 87, 350-355. <https://doi.org/10.1016/j.marpol.2017.02.003>
- Holma, M., Lindroos, M., Romakkaniemi, A., & Oinonen, S. (2019). Comparing economic and biological management objectives in the commercial Baltic salmon fisheries. *Marine Policy*, 100, 207-214. <https://doi.org/10.1016/j.marpol.2018.11.011>
- Hong, Y., & Chan, D. W. (2014). Research trend of joint ventures in construction: a two-decade taxonomic review. *Journal of Facilities Management*. <https://doi.org/10.1108/JFM-04-2013-0022>
- Howard, B. C. (2018). Blue growth: stakeholder perspectives. *Marine Policy*, 87, 375-377. <https://doi.org/10.1016/j.marpol.2017.11.002>
- Isaacs, M. (2019). Is the Blue Justice concept a human rights agenda? Retrieved from africaportal.org (Accessed 12 April 2021)
- Jentoft, S. (2017). Small-scale fisheries within maritime spatial planning: knowledge integration and power. *Journal of Environmental Policy and Planning*, 19(3), 266-278. <https://doi.org/10.1080/1523908X.2017.1304210>
- Jentoft, S. (2020). Blue economy: On and by the water. *Samudra Report* (82), 8-10. <http://aquaticcommons.org/id/eprint/27050>
- Jiang, D., Chen, Z., & Dai, G. (2017). Evaluation of the carrying capacity of marine industrial parks: A case study in China. *Marine Policy*, 77, 111-119. <https://doi.org/10.1016/j.marpol.2016.12.013>
- Johnson, D. S. (2006). Category, narrative, and value in the governance of small-scale fisheries. *Marine Policy*, 30(6), 747-756. <https://doi.org/10.1016/j.marpol.2006.01.002>
- Johnson D.S. (2018). The Values of Small-Scale Fisheries. In: Johnson D., Acott T., Stacey N., Urquhart J. (eds) Social Wellbeing and the Values of Small-scale Fisheries. MARE Publication Series, vol 17. *Springer*, Cham. https://doi.org/10.1007/978-3-319-60750-4_1.
- Keen, M. R., Schwarz, A. M., & Wini-Simeon, L. (2018). Towards defining the Blue Economy: Practical lessons from pacific ocean governance. *Marine Policy*, 88, 333-341. <https://doi.org/10.1016/j.marpol.2017.03.002>
- Klinger, D. H., Maria Eikeset, A., Davíðsdóttir, B., Winter, A. M., & Watson, J. R. (2018). The mechanics of blue growth: Management of oceanic natural resource use with multiple, interacting sectors. *Marine Policy*, 87, 356-362. <https://doi.org/10.1016/j.marpol.2017.09.025>
- Lee, K. H., Noh, J., & Khim, J. S. (2020). The Blue Economy and the United Nations' sustainable development goals: Challenges and opportunities. *Environment International*, 137, 105528. <https://doi.org/10.1016/j.envint.2020.105528>

- McAfee, K. (2012). The contradictory logic of global ecosystem services markets. *Development and Change*, 43(1), 105-131. <https://doi.org/10.1111/j.1467-7660.2011.01745.x>
- McKinley, E., Aller-Rojas, O., Hattam, C., Germond-Duret, C., San Martín, I. V., Hopkins, C. R., . . . Potts, T. (2019). Charting the course for a blue economy in Peru: a research agenda. *Environment, Development and Sustainability*, 21(5), 2253-2275. <https://doi.org/10.1007/s10668-018-0133-z>
- Mills, D. J., Westlund, L., Graaf, G. de, Kura, Y., Willman, R., & Kelleher, K. (2011). Under-reported and undervalued: small-scale fisheries in the developing world. In *Small-scale fisheries management: frameworks and approaches for the developing world* (pp. 1-15). CABI. <https://doi.org/10.1079/9781845936075.0001>
- Moffitt, C. M., & Cajas-Cano, L. (2014). Blue Growth: The 2014 FAO State of World Fisheries and Aquaculture. *Fisheries*, 39(11), 552-553. <https://doi.org/10.1080/03632415.2014.966265>
- Moore, F., Lamond, J., & Appleby, T. (2016). Assessing the significance of the economic impact of Marine Conservation Zones in the Irish Sea upon the fisheries sector and regional economy in Northern Ireland. *Marine Policy*, 74, 136-142. <https://doi.org/10.1016/j.marpol.2016.09.025>
- Mulazzani, L., Trevisi, R., Manrique, R., & Malorgio, G. (2016). Blue Growth and the relationship between ecosystem services and human activities: The Salento artisanal fisheries case study. *Ocean and Coastal Management*, 134, 120-128. <https://doi.org/10.1016/j.ocecoaman.2016.09.019>
- Munn, Z., Peters, M. D., Stern, C., Tufanaru, C., McArthur, A., & Aromataris, E. (2018). Systematic review or scoping review? Guidance for authors when choosing between a systematic or scoping review approach. *BMC Medical Research Methodology*, 18(1), 1-7. <https://doi.org/10.1186/s12874-018-0611-x>
- Nahuelhual, L., Defeo, O., Vergara, X., Blanco, G., Marín, S. L., & Bozzeda, F. (2019). Is there a blue transition underway? *Fish and Fisheries*, 20(3), 584-595. <https://doi.org/10.1111/faf.12354>
- Niiranen, S., Richter, A., Blenckner, T., Stige, L. C., Valman, M., & Eikeset, A. M. (2018). Global connectivity and cross-scale interactions create uncertainty for Blue Growth of Arctic fisheries. *Marine Policy*, 87, 321-330. <https://doi.org/10.1016/j.marpol.2017.10.024>
- OECD. (2016). *The Ocean Economy in 2030*. OECD Publishing, Paris.
- Okafor-Yarwood, I., Kadagi, N. I., Miranda, N. A., Uku, J., Elegbede, I. O., & Adewumi, I. J. (2020). The blue economy -cultural livelihood-ecosystem conservation triangle: the African experience. *Frontiers in Marine Science*, 7, 586. <https://doi.org/10.3389/fmars.2020.00586>

- Oliveira, A. S., de Barros, M. D., de Carvalho Pereira, F., Gomes, C. F. S., & da Costa, H. G. (2018). Prospective scenarios: A literature review on the Scopus database. *Futures*, *100*, 20-33. <https://doi.org/10.1016/j.futures.2018.03.005>
- Osei-Kyei, R., & Chan, A. P. (2018). Stakeholders' perspectives on the success criteria for public-private partnership projects. *International Journal of Strategic Property Management*, *22*(2), 131-142. <https://doi.org/10.3846/ijspm.2018.444>
- Overå, R. (2011). Modernisation narratives and small-scale fisheries in Ghana and Zambia. *Forum for Development Studies*. <https://doi.org/10.1080/08039410.2011.596569>
- Parker, R. W., Blanchard, J. L., Gardner, C., Green, B. S., Hartmann, K., Tyedmers, P. H., & Watson, R. A. (2018). Fuel use and greenhouse gas emissions of world fisheries. *Nature Climate Change*, *8*(4), 333-337. <https://doi.org/10.1038/s41558-018-0117-x>
- Pauly, D. (2018). A vision for marine fisheries in a global blue economy. *Marine Policy*, *87*, 371-374. <https://doi.org/10.1016/j.marpol.2017.11.010>
- PEMSEA, 2012. Toward an Ocean-based Blue Economy: Moving Ahead with the Sustainable Development Strategy for the Seas of East Asia. The Fourth Ministerial Forum on the Sustainable Development Strategy for the Sea of East Asia. <http://pemsea.org/publications/agreements-and-declarations/changwon-declaration-toward-ocean-based-blue-economy-moving> (accessed 6 December 2020).
- Philipp, R., Prause, G., & Meyer, C. (2020). Blue Growth Potential in South Baltic Sea Region. *Transport and Telecommunication*, *21*(1), 69-83. <https://doi.org/10.2478/ttj-2020-0006>
- PIDF (2021). Blue economy. Retrieved from <http://greenbusiness.solutions/blue-economy/>. (Accessed 10 January, 2021).
- Said, A., & MacMillan, D. (2020). 'Re-grabbing' marine resources: a blue degrowth agenda for the resurgence of small-scale fisheries in Malta. *Sustainability Science*, *15*(1), 91-102. <https://doi.org/10.1007/s11625-019-00769-7>
- Schaink, A. K., Kuluski, K., Lyons, R. F., Fortin, M., Jadad, A. R., Upshur, R., & Wodchis, W. P. (2012). A scoping review and thematic classification of patient complexity: offering a unifying framework. *Journal of Comorbidity*, *2*(1), 1-9. <https://doi.org/10.15256/joc.2012.2.15>
- Schorr, D. K. (2005). Artisanal Fishing: Promoting Poverty Reduction and Community Development Through New WTO Rules on Fisheries Subsidies-An Issue and Options Paper. *The United Nations Environment Programme (UNEP), Economics and Trade Branch (ETB), Geneva*. <http://hdl.handle.net/20.500.11822/25946>
- Silver, J. J., & Campbell, L. M. (2018). Conservation, development and the blue frontier: The Republic of Seychelles' debt restructuring for marine conservation and climate adaptation program. *International Social Science Journal*. <https://doi.org/10.1111/issj.12156>

- Silver, J. J., Gray, N. J., Campbell, L. M., Fairbanks, L. W., & Gruby, R. L. (2015). Blue Economy and Competing Discourses in International Oceans Governance. *Journal of Environment and Development*, 24(2), 135-160. <https://doi.org/10.1177/1070496515580797>
- Song, A. M., Scholtens, J., Barclay, K., Bush, S. R., Fabinyi, M., Adhuri, D. S., & Haughton, M. (2020). Collateral damage? Small-scale fisheries in the global fight against IUU fishing. *Fish and Fisheries*, 21(4), 831-843. <https://doi.org/10.1111/faf.12462>
- Techera, E. J. (2018). Supporting blue economy agenda: fisheries, food security and climate change in the Indian Ocean. *Journal of the Indian Ocean Region*, 14(1), 7-27. <https://doi.org/10.1080/19480881.2017.1420579>
- Teh, L. C., & Sumaila, U. R. (2013). Contribution of marine fisheries to worldwide employment. *Fish and Fisheries*, 14(1), 77-88. <https://doi.org/10.1111/j.1467-2979.2011.00450.x>
- Thomson, D. (1980). Conflict within the fishing industry. *ICLARM Newsletter*, pp. 3-4.
- UNCTAD. (2014). The Oceans Economy: Opportunities and Challenges for Small Island Developing States. *United Nations Conference on Trade and Development*. https://unctad.org/system/files/official-document/ditcted2014d5_en.pdf
- UNECA. (2016). Africa's Blue Economy: A policy handbook. *Economic Commission for Africa*, Retrieved from <https://www.uneca.org/publications/africas-blue-economy-policy-handbook>.
- van den Burg, S. W. K., Kamermans, P., Blanch, M., Pletsas, D., Poelman, M., Soma, K., & Dalton, G. (2017). Business case for mussel aquaculture in offshore wind farms in the North Sea. *Marine Policy*, 85, 1-7. <https://doi.org/10.1016/j.marpol.2017.08.007>
- Voyer, M., Farmery, A. K., Kajlich, L., Vachette, A., & Quirk, G. (2020). Assessing policy coherence and coordination in the sustainable development of a Blue Economy. A case study from Timor Leste. *Ocean and Coastal Management*, 192, 105187. <https://doi.org/10.1016/j.ocecoaman.2020.105187>
- Voyer, M., Quirk, G., McIlgorm, A., & Azmi, K. (2018). Shades of blue: what do competing interpretations of the Blue Economy mean for oceans governance? *Journal of Environmental Policy*, 20(5), 595-616. <https://doi.org/10.1080/1523908X.2018.1473153>
- World Bank. (2020). Healthy oceans • healthy economies • healthy communities. *Annual Report*. Retrieved from <https://documents1.worldbank.org/curated/en/564401603456030829/pdf/PROBLUE-2020-Annual-Report.pdf> (accessed 18 February 2021)

Chapter 3

Industrial and Small-Scale Fisheries Relations in Ghana: A Political Ecology Perspective on Marine Fisheries Exclusion

Abstract

The fisheries sector in Ghana is a significant source of livelihood for many communities along the coast. However, the sector faces several challenges, including the power dynamics between the industrial bottom trawl industry and small-scale fishers. The concept of resource scarcity has frequently been used to characterise conflicts between industrial vessels and small-scale canoes in Ghana. This paper seeks to build on this dominant narrative that resource scarcity is the key driver of conflicts, arguing that exclusion, and resistance to exclusion can also explain contemporary conflicts in marine fisheries, and that indeed apparent resource scarcity can be caused by exclusion. A political ecology lens reveals that fisheries conflict in Ghana is entwined with established and emerging socio-political domains of exclusion, namely, regulation, legitimisation, force, and the market. We explain how contradictory regulations and ambiguous boundary delimitations, combined with a long period of weak enforcement, have helped industrial trawlers exploit fisheries in ways that exclude small-scale fishers. Additionally, with foreign-aid diplomacy legitimising the expansion of foreign-owned industrial trawlers, the infiltration of illegal catch into the small-scale value chain harms local businesses. We conclude that conflict serves as both a tool and a symptom of exclusion through its connection to regulatory, jurisdictional, and political contexts, as well as market dynamics.

Keywords: Blue growth, blue justice, Artisanal fisheries, Saiko, Exclusion, West Africa

3.1 Introduction

The pursuit of industrialisation and modernisation in many developing countries has left a significant social and economic footprint on their fisheries (Belhabib et al., 2020; Overå, 2011). The introduction of large-scale industrial and technologically advanced vessels and equipment has actively contributed to overcapacity and the decline of fisheries (Bavinck, 2005; Mansfield, 2010; Okeke-Ogbuafor et al., 2020; Nyiawung et al., 2023). Additionally, fisheries have become an instrument of economic and political authority, as demonstrated through unequal relations in control, technology and investment (Childs & Hicks, 2019).

The industrialisation of Ghana's fisheries began in the 1950s with the government establishing a state-owned fishing corporation to boost economic growth (Bank of Ghana, 2008; Nunoo et al., 2014). However, in the 1980s, the corporation was privatised as part of the country's structural adjustment plan (Acquay, 1992). Since then, regulatory changes have encouraged private participation in fishery industrialisation, leading to a surge in foreign investment in industrial fishing trawlers, mainly from Europe and Asia (Acquay, 1992; Bennett, 2002). The current fisheries law allows foreign ownership in the industrial tuna fishing sector but restricts industrial trawl fishing to Ghanaians (Akpalu & Eggert, 2021). Because Ghanaian fishing companies lack the technical expertise and the necessary financial capital to run large-scale industrial fishing trawlers, they have formed lease-type contractual arrangements with Chinese fishing firms (Akpalu & Eggert, 2021; Environmental Justice Foundation, 2021). In violation of Ghana's Fisheries Act 625, 2002, Chinese corporations with Ghanaian front persons have maintained control of industrial trawl fishing in Ghana and the profits are mostly transferred abroad (Danquah et al., 2021; Environmental Justice Foundation, 2021; Nunoo et al., 2014). Foreigners own most of the trawl fishing vessels, and most of the captains are also foreigners; Ghanaians make up the lower paid crew roles. In this study, we focus on the industrial bottom trawl industry, which is a dominant source of concern compared to the better regulated industrial tuna industry.

The small-scale fishing industry is a significant source of food and income for most rural coastal fishing communities in Ghana, with approximately 12,000 canoes operated by 200,000 fishers (Adjei & Overå, 2019; MoFAD, 2015). It comprises a diverse fishery segmented by social class, gender, and other customary arrangements along the value chain (Britwum, 2009). The small-scale fishing industry contributes to over 70% of total fish

production in the country and more than 60% of workers in the fishery value chain are women – mainly in trading and processing (FAO, 2016; Lazar et al., 2018; Nunoo et al., 2014). However, small-scale fishers experience common problems with access to fishing grounds, depletion of resources, and power imbalances, including violent incursions, political manoeuvring over fisheries management and regulatory weakness that favours industrial fishing trawlers (Kassah & Asare, 2022; Nolan, 2019; Penney et al., 2017).

Studies of the interactions of industrial and small-scale fisheries include, among others, environmental security perspectives (Homer-Dixon, 2010; Turner, 2004) and common property approaches (Ostrom, 1990), with both recognising resource scarcity as a central driver of fisheries conflict. This body of literature argues that in many cases of resource scarcity, different user groups compete over scarce fishing resources and, in the process, create conflict (Charles 1992; Doumbouya et al., 2015; Kolding et al., 2014; Pomeroy et al., 2016). Using the analytical framework of 'powers of exclusion' by Hall et al. (2011), this study expands on the resource-scarcity scholarship by exploring active exclusionary practices in fisheries as another source of conflict. We contend that conflict may also arise when a more powerful player excludes a less powerful player and the less powerful player resists exclusion. This study shows that the conflict in Ghana seems to have arisen not only from resource depletion, but also been driven by active patterns of exclusion from the fishery by industrial trawlers that persist across a range of power domains. The study draws on qualitative data, including in-depth interviews with stakeholders in Ghanaian fisheries, as well as grey literature. This paper contributes to the maritime fisheries conflict literature by identifying conflict as both a tool and a symptom of resource exclusion.

3.2 Exclusionary powers in marine resources

Political ecology has traditionally focused on land-based natural resources through the analysis of agrarian production (Robbins, 2011). More recently, the examination of the maritime frontier has gained attention from political ecologists as a site of intense political and economic activity, with state and other powerful forces marginalising less powerful classes from access to and use of marine resources and spaces (Barbesgaard, 2019; Benjaminsen & Bryceson, 2012; Bush & Marschke, 2016; Campling et al., 2012; Kalina et al., 2019). Over the last fifty years, expansion and commodification of fisheries have, in most cases, transitioned local fisheries resources into more tradable commodities in domestic and global markets, significantly impacting local

livelihoods (Campling et al., 2012; Nolan, 2019; Nolan et al., 2022). As a result, social scientists have employed political ecology approaches in different contexts, including marine territorialisation (Basset & Gautier, 2014), grabbing (Ayelazuno & Ovadia, 2022; Bavinck et al., 2017; Benjaminsen & Bryceson, 2012), and access to fisheries and coastal resources (Kalina et al., 2019; Nolan, 2019). Additionally, political ecology concepts have been used to study fisheries governance and their impacts on small-scale fisheries (Bennett, 2019; Beitzl, 2012; Penney et al., 2017).

The interactions between industrial fishing trawlers and small-scale fishers is well documented (see Bennett et al., 2001; Kolding et al., 2014; Overå, 2011; Penney et al., 2017; Pomeroy et al., 2016). Historically, there has been a conflictual relationship between them, with industrial trawl fishing stakeholders often exerting their influence and power over small-scale fishers (DuBois & Zografos, 2012; Nolan, 2019). Despite operating in the same maritime environment, small-scale fishers and industrial trawlers have substantial differences in tenure rights, gear and boat types, and socioeconomic organization, each possessing distinct and contrasting social, political, and economic power and influence (Bavinck, 2005). Moreover, the spatial and technological configurations of industrial marine fisheries also differ from small-scale fisheries, influencing resource access and environmental impacts (Bavinck, 2005; Belton et al., 2019; DuBois & Zografos, 2012; Seto, 2017). For example, active industrial trawl fishing has expanded in many parts of the globe, resulting in increased exploitation of fisheries resources and the exclusion of small-scale fishing actors, sparking conflict (DuBois & Zografos, 2012; Penney et al., 2017). In Ghana, studies have highlighted the unequal relationship between the small-scale fishing populace in coastal communities and the powerful industrial trawl fishing capitalists, who use their influence and scale to marginalise small-scale fishers (DuBois & Zografos, 2012; Nolan, 2019). In this study, we consider resource scarcity as an immediate cause of conflict between industrial trawlers and small-scale fishers but also explore exclusionary practices in Ghana's marine fisheries as a possible underlying contributing factor.

To expand the dominant scarcity-conflict perspective, we use Hall et al.'s (2011) "powers of exclusion" framework to investigate the various dynamics of marine fisheries exclusion in Ghana. In their study of land disputes and social exclusion in Southeast Asia, Hall et al. (2011) emphasised the significance of four types of power: *regulation, legitimation, force, and the market*. While Hall et al.'s (2011) concepts have been widely applied to different terrestrial-

based resources (Akaateba, 2019; Foukona & Allen, 2019; Kansanga et al., 2019), with few exceptions (Afroz et al., 2017; Fabinyi et al., 2019) it has rarely been applied to maritime spaces. The analytical emphasis of "powers of exclusion" is not limited to physical control, which is frequently the focus in scarcity-conflict literature, but also emphasises discursive powers and agency exercised through *legitimation* and *regulation*, respectively (Hall et al., 2011). In addition, the approach demonstrates how the scale of operations enables actors to maintain economic dominance through the *market*, thereby marginalising actors who have smaller scale operations (Hall et al., 2011).

In much of the research on intra-sectoral interactions in marine fisheries, these multi-dimensional elements of power are underemphasised. The powers of exclusion framework therefore present a new approach to understanding the complex interplay between social, economic, and political factors that shape access and exclusion in the marine fisheries literature. Through its focus on power dynamics, this approach illustrates the means, processes, and relationships that different actors utilise to gain and maintain control over marine fisheries resources and to exclude others (Bennett, 2019; Robbins, 2011).

3.3 Method and materials

3.3.1 Study sites

Ghana has a population of approximately 30 million people (Ghana Statistical Service, 2020) and a GDP of USD 67 billion, and it is classified as a lower-middle-income country (World Bank, 2021). It has a total land area of 227,540 km² and a coastline of 550 km (Bank of Ghana, 2008). Ghana's total continental shelf-covering maritime area is approximately 225,000 km², including the 200 nautical miles Exclusive Economic Zone (EEZ) (Nunoo et al., 2014). Fish is an important part of Ghana's diet, and contributes significantly to people's livelihoods and the national economy (Sarpong et al., 2005). The fisheries sector is estimated to contribute around 4.5 per cent of GDP (MoFAD, 2015), with about 2.6 million people, representing 10 percent of Ghana's total population, directly and indirectly earning a living through the fisheries sector. Approximately 75% of total fish production is consumed domestically, with the estimated average per capita fish consumption of 25kg significantly exceeding the global average of 18.9 kg (Coastal Resources Center, 2018; FAO, 2016).

This study was conducted in Ghana's Western and Greater Accra regions, two of the country's most economically active coastal regions. Ghana's commercial oil production and gas processing are in the Western region. The Greater Accra region is home to the country's capital. Of the country's major ports used by industrial fishing vessels, Takoradi is located in Western and Tema is located in Greater Accra. The Ghana Fisheries Arbitration Committees, which deals with cases of conflict between small-scale fishers and other vessels, are also located in both regions.

This study comprised eight fishing communities in the two regions drawn from seven major coastal districts in which small-scale fisheries have supported social, economic, and cultural well-being for generations. Table 3.1 summarises the key characteristics of the study locations and districts, and Figure 3.1 shows their locations.

Table 3. 1: Characteristics of the study locations

Study Areas	District	Population	Locality	Type of Landing Facility	Fishing Vessel types
Sekondi New Takoradi	Sekondi-Takoradi Metropolitan	435,009	Urban	Commercial Port Local landing beaches	Canoes Semi-industrial vessels Industrial trawlers Tuna vessels
Axim	Nzema East Municipal	80,933	Rural	Local landing beaches	Canoes Semi-industrial vessels
Half Assini	Jomoro Municipal	129,163	Rural	Local landing beaches	Canoes Semi-industrial vessels
James Town	Accra Metropolitan	555,767	City	Local landing beaches	Canoes Semi-industrial vessels
Tema New Town	Tema Metropolitan	212,926	Urban	Commercial Port Local landing beaches	Canoes Semi-industrial vessels Industrial trawlers Tuna vessels
Teshie	Ledzokuku-Krowor Municipal District	128,675	Urban	Local landing beaches	Canoes Semi-industrial vessels

Ningo-Prampam District	Ningo-Prampam District	89,387	peri-urban	Local landing beaches	Canoes Semi-industrial vessels
------------------------	------------------------	--------	------------	-----------------------	-----------------------------------

Ghana Statistical Services (2021); Dovlo et al., (2016)

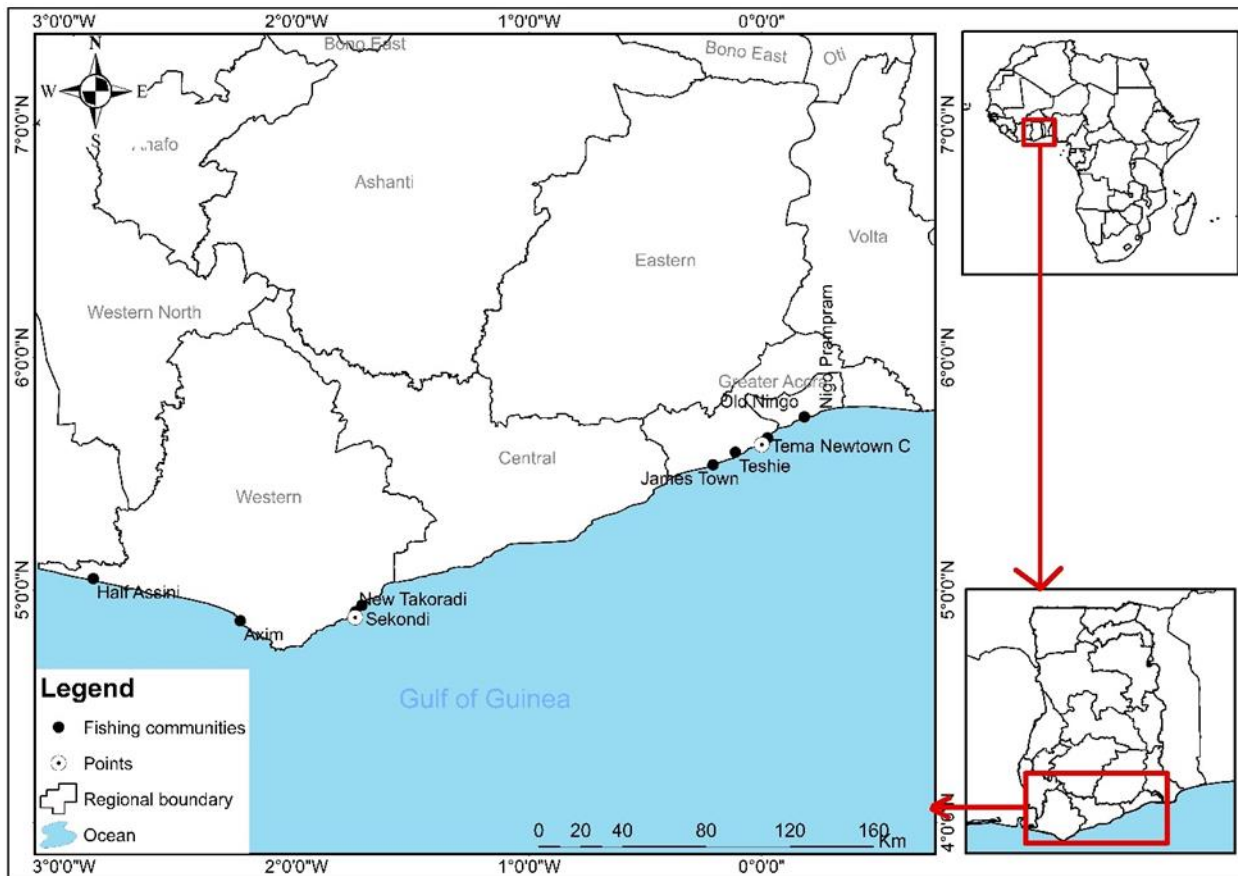


Figure 3. 1 : Map showing the study communities

Source: Authors (2021)

These districts include cities, urban, peri-urban, and rural areas. Except for Sekondi and New Takoradi, which are in the same local administrative district, the remaining coastal communities are in separate local administrative districts. These coastal communities are included on the list of active fishing communities maintained by the Ghana Marine Canoe Frame Survey of the Ministry of Fisheries and Aquaculture Development's Fisheries Scientific Survey Division (FSSD) (Dovlo et al., 2016). Local landing beaches serve as the primary landing areas for small-scale fisheries, except in Tema New Town, Sekondi, and

Takoradi communities, each of which has a commercial port with landing space for small-scale fisheries.

As noted by Marshall and Rossman (2014), when studying a phenomenon that is unconstrained by place or population, the researcher 'determines a sampling strategy that is purposeful and representative' (p. 61). We selected these communities because small-scale fisheries constitute their primary economic activities and are the most significant locations of small pelagic catch in Ghana. Furthermore, the selected communities vary in geographical characteristics while facing similar fisheries-related challenges such as industrial trawling activities, fuel shortages, and the complexities of distributing government-subsidised fuel to local fishers.

3.3.2 Data collection

During field data collection between January and July 2021, Ghana was experiencing a second wave of the COVID-19 pandemic with new infections, hospitalizations, and deaths (Ghana Health Service, 2021). We collected data using novel qualitative research approaches and a COVID-19 safety protocol checklist (see McDougall et al., 2020). Due to COVID-19 travel restrictions the first author was unable to travel to Ghana for the interviews, so he collaborated with the fourth co-author, who was based in Ghana, to conduct the interviews. For most of the field interviews, the lead author participated remotely via video conferencing software (Zoom.us).

All coastal fishing communities in Ghana have established local fisheries management structures. The chief fisherman, referred to as *apofohene*, represents fishers in the communities, whereas the chief fish processor, referred to as *konkohemaa*, represents traders and processors (Adjei & Overå, 2019). The chief fisherman and chief fish trader are responsible for all aspects of the governance of small-scale fisheries in coastal communities (Adjei & Overå, 2019). We conducted interviews with male chief fishermen ($n = 8$) and female chief fish processors ($n = 8$). Additionally, two focus groups, one with five local fishers and five processors, were held in each of the eight coastal communities. In addition, we conducted an interview ($n = 1$) with a representative of the Ghana Industrial Trawler Association (GITA), the association of Ghana's large industrial trawler vessels. Obtaining additional interviews with industrial fishers proved difficult; therefore, we drew on existing literature on interactions of industrial fishers with small-

scale fishers in Ghana. We also interviewed two key government officials (n = 2) involved in Ghanaian fisheries management, as well as representatives from local (n = 1) and an international (n = 1) civil society organisation active in Ghana's fisheries sectors. Consequently, the results of this study are primarily shaped by the viewpoints of small-scale fishers, with comparatively less data on the perspectives of government, civil society and industrial fishers.

Field data were collected in English and in two indigenous languages, Ga and Fante, which are predominantly spoken in coastal communities in the Greater Accra and the Western region. The fourth co-author is fluent in the Fante language and conducted those interviews. The interviews with government officials and representatives of civil society organisations were in English. Field interviews ranged in duration from 30 minutes to 90 minutes. The study's participant cohorts were sampled purposively based on their expertise and knowledge of fishing and fishing challenges in their respective communities. The participants in the small-scale fisheries cohort, where individuals engage in community-based fisheries, have extensive knowledge of marine-based livelihoods, and the government stakeholders and civil society actors are professionally involved in fisheries sector governance and decision making. With this approach to interviewing we identified key participants and generated data from a range of perspectives (Saldana, 2011) to answer the study's research question - what are the mechanisms and processes of small-scale fisheries exclusion in Ghana?

In most cases, the interviews began with a broad topic, such as community fisheries dynamics, and progressed to a more specific topic, such as fisheries exclusion. Through our use of 'scaffolding' (Hammond & Gibbons, 2005), the research participants gradually developed narratives on the primary mechanisms by which small-scale fisheries lose access to fishing grounds and resources. This data allowed us to draw connections between exclusions from fisheries, the dynamics of fishing communities, and the implications of these connections for local livelihoods.

3.3.3 Data analysis

All interviews and group discussions from the field were recorded with permission. The data from the Fante interviews were translated verbatim into English by the fourth co-author, and the Ga interviews were translated into English using an interpreter. Both sets of interviews were then transcribed alongside those conducted in English. NVivo-QSR International software was used to

code the transcribed files. We classified the transcripts into three cohorts (fishers, government, and civil society), coded them separately and compared the themes for validity (Strauss & Corbin, 1990). The lead author performed the initial coding, which the second co-author then reviewed. We generated 10 themes in total from the codes, which were then merged into the five themes that constitute our findings. The themes were then analysed qualitatively and supported with the available literature in tandem with Hall et al.'s (2011) powers of exclusion. Moreover, in the following discussion section, we draw on participants' comments and selected quotations to provide a more complete picture of the conditions faced by Ghanaian small-scale fisheries. In addition, our interpretations have drawn on the lead author's experience as a small-scale fisheries management specialist in Ghana.

3.3.4 Limitations

Much of this research dealt with contentious political issues and perceptions, such as illegalities, corruption, and the role of aid support in fisheries. However, we emphasize the significance of acknowledging the perceptions held by small-scale fishers whether or not all the various claims by are true or not, as these perceptions play a crucial role in driving behaviour and influencing the legitimacy of governance arrangements. By exploring these perceptions, this study unveils hidden meanings, underlying assumptions, and power relations that are not immediately apparent, thereby shedding light on the current challenges faced by Ghanaian small-scale fisheries. Furthermore, as others have argued, there is no way to understand fishers' actions without tackling perceptions of corruption (Walley, 2004: p.26). However, it is important to note that the claims made by small-scale fishers, as well as the counter-claims put forth by industrial fishers and government officials, are based solely on field interviews and literature sources. While there may be rumours and undercover investigative reports that identify specific individuals and groups in Ghana, this research does not purport to provide evidence of specific instances of wrongdoing, as it falls outside the scope of our study.

3.4 Results and Discussion

Industrial fishing in Ghana primarily involves trawler vessels, which are characterized by large-scale, capital-intensive operations, advanced equipment, and substantial economic and political influence (Ofori-Danson et al. 2021; Nunoo et al., 2014). These patterns of industrialisation in the trawl fishery have caused socioeconomic, environmental, and political repercussions for Ghana's small-scale fisheries (Environmental Justice Foundation, 2021;

Hasselberg et al., 2020; Nunoo et al., 2014). Studies have highlighted the social and environmental impacts of industrial fisheries in Ghana, particularly in the inshore exclusion zone (IEZ) (Environmental Justice Foundation, 2021; Nolan, 2019). While there has been a steady increase in small-scale catch with annual landings exceeding 150 thousand metric tonnes, there has been a significant decline in catch per unit of effort (CPUE) since 1990 (Ministry of Fisheries and Aquaculture Development [MoFAD], 2015). The average catch per canoe per day has dropped from 2.7 tonnes to 0.2 tonnes, indicating an overfished IEZ and the fish landed have reduced considerably in terms of size (Lazar et al., 2018; Ministry of Fisheries and Aquaculture Development [MoFAD], 2015). Industrial fishing trawling activities have depleted local fish stocks, displaced small-scale fishers, marginalised women merchants and processors, and undermined local livelihoods (see Ayilu et al., 2022). The average annual income per small-scale fishing canoe has plummeted as much as 40 per cent over the past 10 to 15 years (EJF, 2022). In addition, Ghana's marine fisheries sector lacks monitoring, control, and surveillance capabilities, posing significant obstacles to sustainable fishing practices. There are instances of weak enforcement of existing regulations and corruption, which have hampered the effective monitoring and management of fishing activities along its coastline (Environmental Justice Foundation, 2021; Nolan, 2019).

Beyond the decline in CPUE and income it is crucial to understand the active exclusionary practices that underpin the decline of small-scale fisheries in Ghana. These practices encompass overfishing, the employment of more effective fishing techniques, the dominance of industrial trawlers, as well as the threat and actual physical displacement of small-scale fishers. This section explores the ways by which Ghanaian small-scale fishers could be excluded, shedding light on these exclusionary practices and their implications for the sustainability and equity of Ghana's fisheries sector. The findings are thematically organised and discussed using the four powers of exclusion: regulation, legitimacy, force, and market power.

3.4.1 Regulation

In addition to a lack of monitoring, control, and surveillance capability and an insufficient prosecuting system due to perceived corruption, small-scale fishers are concerned about inconsistent regulations and unclear boundaries. Spatial regulation is crucial to natural resource governance in a coastal state like Ghana. The emerging evidence from this study shows the

potential for regulatory mechanisms to become a significant pathway by which industrial trawlers can exclude small-scale fishers. Regulatory concerns raised by small-scale fishers are discussed in two thematic areas, contradictory regulations and ambiguous boundaries.

3.4.1.1 Contradictory Regulations

Spatial regulation is a significant source of fisheries governance debate in Ghana. While the Inshore Exclusion Zone (IEZ) is a reserved fishing ground for small-scale fishers under Ghana's fisheries law (Fisheries Act 625, 2002), in practice, the regulations regarding the zoning are not enforced. One such regulatory concern, which has been less of a focus in Ghana's fisheries governance in the past, but has recently been highlighted by civil society organisations (CSOs) is the country's exemption scheme for industrial fishing trawlers. Ghanaian fisheries regulations allow the Director of the Fisheries Commission to grant an unrestricted number of industrial trawlers exemption permits to fish in the IEZ for cephalopods at specific appropriate periods (Section 81(6), 2002 Fisheries Act (625)). However, the CSOs and small-scale fishers have raised concerns about the exemption scheme as a contributing factor to the incursion of industrial trawlers in the IEZ. Although these exemption schemes are lawful, due to current patterns of fishing activity, CSOs involved in the research have pointed to their opaque nature as a major concern. They argue that such fisheries management regulatory scheme is inextricably associated with corruption, ineffective monitoring, control and surveillance, and an insufficient prosecutorial system. For example, information about the number of vessels and scale of actual activities is often not publicly available (Seto et al., 2023). Although Ghanaian government officials claim that exemptions for industrial vessels in the IEZ are not widespread, CSOs and small-scale fishing groups are suspicious because a list of these exemptions in Ghana have never been published. The CSOs interviewed alleged that highly powerful and prominent industrial fishers with political connections obtain these exemptions, which means it is harder to prosecute exemption holders if they engage in illegal fishing activities.

Small-scale fishers supported the CSOs participants' claims by recounting instances where industrial trawlers suspected of illegal fishing activities in the IEZ were not sanctioned after such trawlers were classified as exempted vessels:

Sometimes when we file complaints, the office only dismisses our cases because they claim to have an operating permit. So, how can the law represent us? It does represent other people's interests and the interests of the government (Interview #6, chief fisherman with 42-years of experience).

According to the Food and Agricultural Organisation's (FAO) Small-scale Fisheries Guidelines, exemptions like those in Ghana should involve stakeholder engagement and be made public, including the activities authorized, the duration of the authorization, and any conditions attached (FAO, 2016).

Ghanaian fishery officials interviewed have strenuously contested these accusations, arguing that the permits are limited to catching specific fish species in the coastal waters. A fishery manager explained:

To the best of my knowledge, such exemption is not widespread even though the application and approval of the exemption scheme is the prerogative of the Director of the Fisheries Commission, and are limited to fish species.

While the allegations by small-scale fishers and CSOs are difficult to verify, there is also literature pointing to these problems. For instance, a report by the Environmental Justice Foundation backs some of the assertions made by small-scale fishers (EJF, 2021). According to the report, between 2017 and 2021, only three of the thirty industrial trawler violations and incursions in Ghanaian IEZ filed at the Fisheries Commission were sanctioned. The sanctions issued against the remaining industrial trawlers were never disclosed. Moreover, according to recent literature (see Belhabib et al., 2020; Nolan, 2019), it is possible that industrial trawler vessels in Ghana may be engaged in illegally fishing in the IEZ. In addition, the capacity of the Ghanaian fisheries enforcement unit to adequately regulate the actions of industrial trawlers, such as illegal catch transshipment, has become a major concern among civil society practitioners (Afoakwah et al., 2018).

3.4.2 Fuzzy boundaries

Maritime boundaries are often less clear than land boundaries, and this lack of clarity can create opportunities for fisheries resource exploitation (Gupta & Sharma, 2004). In Ghana, the Inshore Exclusive Zone (IEZ) is the fundamental restriction zone well-known to industrial trawlers and small-scale fishers (Seto et al., 2023). However, throughout our interviews with small-scale fishers and CSOs, the absence of a clear boundary demarcation was mentioned as a loophole that industrial trawlers use to exploit fisheries within IEZ jurisdictions designated for small-scale fishers. According to the Fisheries Act 625 (2002), the IEZ is the coastal waters between the coastline and the 30-metre depth isobaths, or the 6-nautical mile offshore limit, whichever is farther. Small-scale fishers primarily work with the 30-meter isobath because they use depth to direct their fishing operations at sea (EJF, 2021). However, in practical fisheries management terms, there is no officially harmonised map of the IEZ fishing boundary in use by the government or any physical indication, making it difficult to enforce the IEZ fishing delineation in the laws. This unclear demarcation of the IEZ fishing boundary has recently emerged as a prominent issue in the management of marine fisheries in Ghana. Both fishers and CSOs in marine policy in Ghana have advocated for reforms, including an extension of the current IEZ fishing boundary of 6 nautical miles to 12 nautical miles (as shown in Figure 2) in order to protect local fishers' livelihoods (EJF, 2021). However, this proposal is yet to get the backing of the government. Industrial trawler actors in Ghana, through the representative interviewed for this study, have indicated their strong opposition to the proposal for extension raised by small-scale fishers and CSOs.

Small-scale fishers have accused the industrial trawlers of taking advantage of such fuzzy boundaries to catch fish in the IEZ, as a result denying them abundant catch. Industrial trawlers actors have contested the IEZ violation claims of the local fishers. It is not possible to determine whether the industrial trawlers exploit the imprecision of coastal boundaries in Ghana to catch fish within the IEZ. However, given the large number of conflicts reported between industrial trawlers and small-scale fishers that occurred within the IEZ in Ghana (see Ameyaw et al., 2021; Bennett et al., 2001; Penney et al., 2017), it is unlikely that all apparent incursions in this zone were just industrial trawlers passing through the IEZ.

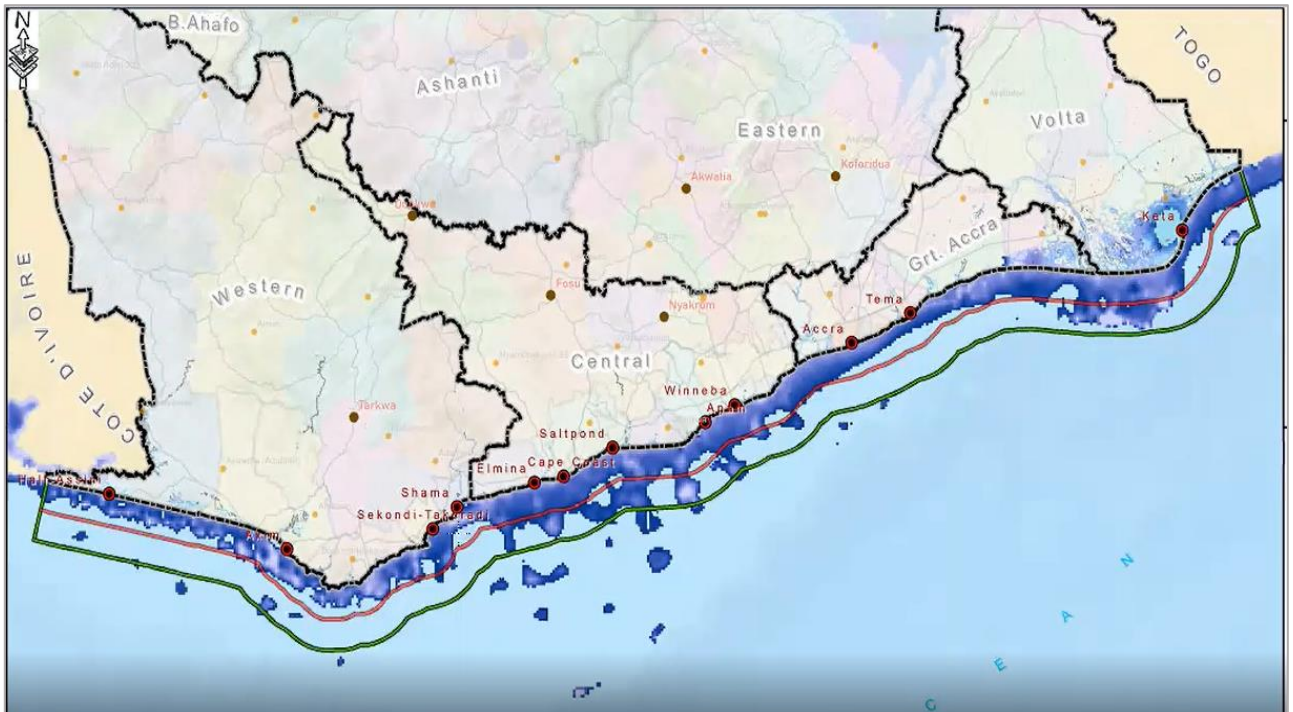


Figure 3. 2: Ghana's six (6) and twelve (12) nautical mile Inshore Exclusive Zones, as well as its 30 metre depth (Red - 6 nautical miles: Green - 12 nautical miles: Deep blue - 30 metres depth contour)

Source: EJF (2021)

3.4.3 Legitimation

Legitimacy explains the moral justifications that enable one party to obtain an advantage over another in resource appropriation or exploitation (Hall et al., 2011). The phenomenon of legitimacy matters more when the parties competing for a specific resource share a discursive platform. In order to legitimise the state's lack of action against expanding dominance of Chinese-connected industrial vessels, government officials interviewed and also in media/literature often mentioned China's role in Ghana's efforts to expand its economy via enormous infrastructure projects. In a similar case, Chinese nationals are heavily involved in illegal gold mining in Ghana, prompting concerns among local communities and conservationists (Gbadamosi, 2020; Ocquaye, 2023). In response to the inaction of Ghanaian authorities in addressing the issue of Chinese illegal gold miners, a top government official in Ghana's ruling party explained:

“...we have a very good relationship with China. Today, the main company helping to develop the infrastructure system in Ghana is Sinohydro, a Chinese company. With these kinds of arrangements, there are things behind the scenes...” (Citinewsroom.com, 2019)

This narrative in many national discourses strongly indicates support for China's involvement in various economic sectors of Ghana, including the fisheries industry, even though foreign ownership in trawl fishing is in violation of Ghanaian fisheries law.

3.4.3.1 China aid and dominance

The Chinese bilateral cooperation in fisheries is rapidly expanding into West African territorial waters. China's infrastructure assistance to Ghana has provided geopolitical advantage to the Chinese nationals with industrial trawling vessels working in Ghanaian waters. In the past two decades, China's diplomacy with the Ghanaian government has intensified, with bilateral agreements centring on natural resources. So far, the Ghanaian government has arranged a financial facility worth USD 2 billion in exchange for bauxite concessions in one of the country's historic forest reserves, sparking environmental concerns (Purwins, 2020). Also, through an aid project to Ghana worth USD 50 million, China is constructing a local fishing port – the Jamestown Fishing Harbour Complex (Global Times, 2020). In most cases, local fishers argue that Chinese-owned industrial trawlers violate Ghanaian fisheries laws, dispossessing them (see Afoakwah et al., 2018) and escaping unpunished (see Eriksen et al., 2018) because Ghanaian authorities fear the repercussions of a potential diplomatic conflict with China. The CSOs have emphasized that the local fishers receive minimal benefits from Chinese trawlers, whereas the small-scale fishing sector contributes significantly to the local economy through widespread employment opportunities. A CSO participant argued:

[The state] looked on for foreigners and influential people to take the marine space because of the support they get from the Chinese government. The local economy benefits more from small-scale fisheries in terms of jobs than from Chinese trawlers (Interview #18: CSO representative with several years' experience)

Local fishers and NGO participants blamed Ghana's compromised relationship with the Chinese government through development aid for the weak enforcement of local laws against the industrial trawlers, and the subsequent dominance in Ghanaian coastal waters. For example, according to a report by the EJF, 'up to 90-95 percent of Ghana's trawl fleet may have Chinese involvement' (EJF, 2018, p4). Literature on West Africa demonstrates that most governments are in a conundrum as they attempt to reconcile domestic coastal livelihoods and development interests with powerful Chinese interests (Akpalu & Eggert, 2019; Belhabib, 2015; Okafor-Yarwood et al., 2022). China's bilateral cooperation in fisheries investment is rapidly expanding in West Africa (Belhabib et al., 2015; Mallory & Panel, 2012; Pauly et al., 2014). China uses development aid as a form of compensation to West African governments, in most cases for fisheries access agreements (Belhabib et al., 2015).

Beyond the perspectives of the research participants, we do not have specific evidence that Ghana's financial relationship with China directly influenced weak enforcement and fisheries access agreements. However, in a context where there are significant and direct economic incentives involved, this makes the strong enforcement of fisheries laws more difficult and therefore helps to legitimate the process of exclusion.

3.4.4 Force

The use of force is a crucial avenue for the exclusion of small-scale fishers in Ghana. Unlawful intrusion and appropriation of fisheries resources and explicit or implicit threats of violence (Hall et al., 2011) and intimidation are commonly deployed by industrial fishers to establish a competitive edge and exclude local fishers. In part, these assertions are supported by prior studies in Ghana (see Seto et al., 2023), which demonstrate a high rate of physical interaction between industrial trawlers and small fishing canoes in local fishing grounds. Increasingly, violent disputes at sea have been reported (Seto et al., 2023), particularly when small-scale fishers attempt to defend themselves in their traditional fishing territory. Most of the small-scale fishermen who were interviewed reported that they had physical encounters with industrial trawlers that resulted in the destruction of fishing boats, damage to nets, verbal and physical abuse, and occasionally even fatalities. They claim that such incidents increase when visibility is low during the harmattan season where dusty continental winds replace the normal south-westerly maritime monsoon breeze (see Lyngsie et al., 2011, for details).

Industrial crew members have also intimidated small-scale fishers by spraying water and throwing wine bottles and stones at them. DuBois and Zografos (2012) study found similar aggressive behaviour between industrial fishers and artisanal fishermen in Senegal. Consequently, the small-scale fishers in Ghana have gradually given way to industrial trawlers in the IEZ, the historical fishing space designated for them. Because of the fear of accidents and damage to their fishing gear and equipment, the small-scale fishers often relocate to allow industrial trawlers access to such grounds. One fisher told us:

The industrial vessels cut through our net, fish in our zone, so we don't get space to fish ... when we see them, we don't stay in such areas in order to save our fishing equipment.
(Interview #3: 25-year experienced chief fisher)

These trends undermine local coastal people's rights and affect small-scale fisheries' well-being (Hen Mpoano, 2021). These forms of marginalisation and dispossession of coastal and ocean space and resources have been described within the literature as 'coastal or ocean grabbing' (Bavinck et al., 2017; Bennett et al., 2015). In the case of Ghana, industrial fishing trawlers usually force small-scale fishers into desperation and despair due to the inability to earn a livelihood (Nolan, 2019), as just a few dominating foreign trawlers have sufficient access to fish.

During the interview, the industrial fishers' representative maintained that some cases reported to the authorities as incidents of violence at sea are exaggerated. The representative further accused the small-scale fishers as the leading cause, arguing that the boats and gear of the small-scale fishers' often lack visibility gadgets on them. Ameyaw et al. (2021) observed that Ghana's small-scale canoes lack visibility detection devices, and their fishing nets are mostly unmarked. However, the small-scale fishers surveyed discounted such claims, arguing that even though they signal with flags and sounds, industrial fishers intentionally advance toward them at sea, destroying their equipment.

Based on the rules of engagement in Ghana's fisheries regulations, small-scale fisheries are entitled to compensation when they present adequate evidence of industrial trawler incursion to the authorities. As small-scale fishers stated, the burden of proof falls mostly on them, even

though they cannot assemble evidence other than presenting the damaged items. Furthermore, prosecutions of incursions and compensation in Ghana occur outside the court system (Friends of the Nation, 2015), with the value of damaged fishing gear and equipment rarely recovered in out-of-court settlements.

3.4.5 Market power

The harvesting and transshipment of small pelagics, locally called Saiko has become contentious among fisheries players in Ghana. Saiko is a form of illegal fishing in which industrial trawlers deliberately target and harvest juvenile and small pelagic fish, which are then sold to the local market through intermediaries. It is important to note that Saiko initially involved cooperation between canoe fishers and industrial vessels to receive bycatch, but later evolved into a widespread illicit activity by industrial fishers deliberately harvesting juvenile fish in local fishing grounds. Recent EJF reports indicate that the law on Saiko has been enforced since September 2021 (Environmental Justice Foundation, 2022), but such activity is still reported by local fishers. Although the practice is prohibited (Fisheries Regulations, 2010, article 33, clause 2) and contravenes international IUU regulations (Baird, 2004), local fishers in Ghana accuse Chinese-owned industrial trawlers of engaging in the practice. According to one report, around 100,000 metric tonnes of small pelagic catch were landed through the Saiko trade in 2017, with market value between US\$ 52.7 and US\$ 81.1 million (EJF, 2022). The evidence suggests the industrial trawler operators have benefited significantly from the small-scale fisheries resources through the Saiko trade.

The traditional methods of credit purchases of catch and pricing structure, which for a long time ensured the viability of local value chains in Ghana, have undergone significant changes. We were told that industrial fishers, through the illegal practice of Saiko, have distorted these mechanisms, disadvantaging local processors and traders. The Saiko operators utilise influential local community players acting as intermediaries to tranship the Saiko catch to only well-resourced processors and traders with whom they have specified agreements. This growing market control has correspondingly distorted the local small-scale value chains in three ways. First, the Saiko trading practice contrasts with the well-established credit system in local communities, as Saiko trading requires substantial cash payment for which local fish trading women lack the capacity. Under the established credit system, local fish traders and processors sponsor fishing expeditions in exchange for the right to collect catch on credit. Second, industrial

fishers set fixed-price contracts unlike the flexible locally established credit financing arrangement mechanisms, which allow local fish traders and processors to negotiate favourable prices. Those who cannot obtain fish from the local fishers because of low catches or scarce capital are effectively excluded from the small-scale value chains. With the rising prices come higher costs to local processors, increased debt, and even withdrawal from the fisheries value chain. A chief processor in one community emphasized:

They [the industrial vessels] have hiked their prices, and many women don't have the money to continue the business, so they have returned to their hometowns or are doing other things. (Interview #23: A chief fish processor with 10 years of experience)

Third, according to participating local small-scale fishers, industrial fishing sometimes distorts the local price of their catch, affecting their incomes.

In the literature, these Saiko practices by industrial fishers are mostly underestimated, overlooked, or viewed as a form of cooperation among fishers (DuBois & Zografos, 2012), thus obscuring their exclusionary underpinnings. For Ramsbotham et al. (2011), cooperation, unlike conflict, should result in a win-win situation for all parties involved. Based on the findings of our study, however, we emphasise that the expansion of industrial fisheries in Ghana has transformed local small-scale fisheries value chains by excluding stakeholders from the small-scale fisheries trade, eventually causing them to lose their livelihoods. While we acknowledge the possibility of cooperation, we argue that the emerging credit and pricing dynamics limit access to the market and are examples of resource exclusion (Hall et al., 2011). The exploitative forms of 'cooperation' among the different types of fishers and traders highlight the power imbalance in their relationships.

3.4.5 Summary of research findings

In this study we explored the four powers of exclusion: regulation, force, and market power (Figure 3). Through an analysis of contradictory regulations and fuzzy boundaries, the influence of China aid and fisheries dominance, instances of violence, threat, and intimidation, as well as emerging credit and pricing dynamics, the research findings shed light on the practices that contribute to the exclusion of small-scale fisheries in Ghana.

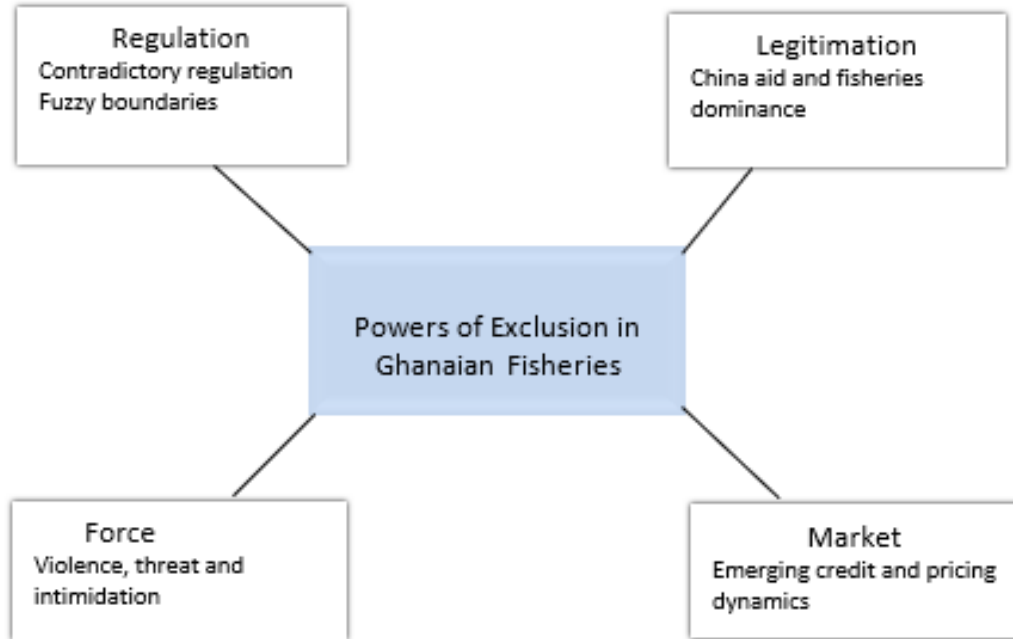


Figure 3. 3: Powers of exclusion in Ghanaian fisheries

3.5 Conclusion

Conflict between industrial and small-scale fisheries has often been influenced by fisheries scarcity (Bennett et al., 2001; DuBois & Zografos, 2012). This paper seeks to build understanding that in addition to resource scarcity as a driver of environmental conflicts, exclusion by powerful actors, and resistance to exclusion can in fact explain key aspects of contemporary conflicts in marine fisheries, and that indeed apparent resource scarcity can be caused by exclusion. To demonstrate this, the paper draws upon conflicts between industrial trawl vessels and small-scale fishing canoes in Ghana, using an analytical framework of exclusion developed by Hall et al (2011). We drew on the literature and on the experiences, perspectives, and narratives of small-scale fisheries actors in Ghana to explain how fisheries resource exclusion is established. While depleted fisheries resources are a central problem for Ghana's small-scale fisheries, resource scarcity does not entirely explain the situation of small-scale fisheries in a country where the interactions between industrial and small-scale fishers have arguably been about exclusion from fisheries resources. Further, the emphasis on scarcity inadequately explains

the crucial mechanisms through which industrial fishers take advantage of power imbalances to gain greater access to resources for themselves at the expense of small-scale fishers and traders.

As demonstrated in Ghana's marine fisheries, conflict functions as both a tool and a symptom of small-scale fisheries' exclusion by industrial fishers within the larger maritime frontier. This exclusion has diverse elements that are connected to legal, regulatory, and political systems, as well as to the social and economic aspects of fisheries market structures. Using the concept of exclusion, we have shown that, rather than being concerned with short-term struggles over scarce resources, industrial fisheries actors maintain their own access and position to fishing grounds and resources and, in the process, effectively exclude the small-scale fishers. Furthermore, we have illustrated how resource exploitation and exclusion in small-scale fisheries extends beyond the harvesting of fish across the value chain to include small-scale fisheries markets.

3.5.1 Ethics declarations

The Human Research Ethics Committee of [Lead Authors Affiliated] gave ethical approval for this study. Fieldwork procedures followed the required ethical guidelines, and all participants provided informed consent.

3.5.2 Funding

This research is supported by an Australian Government Research Training Program Scholarship as part of the first author's PhD, and by the Australian Research Council (DP180100965).

3.5.3 CRediT

The first author conceptualised the research, obtained ethical approval, and wrote the first draft. The second and third authors supervised the research and contributed to analysis. The first and fourth authors conducted the fieldwork and managed data.

3.5.4 Competing interest

The authors declare no competing interests.

3.6.5 Data availability statement

Due to the research participants' confidentiality and privacy concerns, the datasets collected for this research may not be made publicly available except in limited circumstances.

References

- Acquay, H. K. (1992). Implications of structural adjustment for Ghana's marine fisheries policy. *Fisheries Research*, 14(1), 59-70. [https://doi.org/10.1016/0165-7836\(92\)90073-3](https://doi.org/10.1016/0165-7836(92)90073-3)
- Adjei, M., & Overå, R. (2019). Opposing discourses on the offshore coexistence of the petroleum industry and small-scale fisheries in Ghana. *Extractive Industries and Society*, 6(1), 190-197. <https://doi.org/10.1016/j.exis.2018.09.006>
- Afoakwa, R., Osei, M. B. D., & Effah, E. (2018). A guide on illegal fishing activities in Ghana. *USAID/Ghana Sustainable Fisheries Management Project. Narragansett, RI: Coastal Resources Center, Graduate School of Oceanography, University of Rhode Island. Prepared by the University of Cape Coast, Ghana. GH2014_SCI048_UCC, 64.*
- Afroz, S., Cramb, R., & Grünbühel, C. (2017). Exclusion and Counter-exclusion: The Struggle over Shrimp Farming in a Coastal Village in Bangladesh. *Development and Change*, 48(4), 692-720. <https://doi.org/10.1111/dech.12310>
- Akaateba, M. A. (2019). The politics of customary land rights transformation in peri-urban Ghana: Powers of exclusion in the era of land commodification. *Land Use Policy*, 88, 104197. <https://doi.org/10.1016/j.landusepol.2019.104197>
- Akpalu, W., & Eggert, H. (2021). The economic, social and ecological performance of the industrial trawl fishery in Ghana: Application of the FPIs. *Marine Policy*, 125, 104241. <https://doi.org/10.1016/j.marpol.2020.104241>
- Ameyaw, G. A., Tsamenyi, M., McIlgorm, A., & Aheto, D. W. (2021). Challenges in the management of small-scale marine fisheries conflicts in Ghana. *Ocean and Coastal Management*, 211. <https://doi.org/10.1016/j.ocecoaman.2021.105791>
- Ayelazuno, J. A., & Ovadia, J. S. (2022). Ocean and land grabbing in Ghana's offshore petroleum industry: From the agrarian question to the question of industrialisation. *Journal of Agrarian Change*, 22(4), 673-702. <https://doi.org/10.1111/joac.12502>
- Ayilu, R. K., & Nyiawung, R. A. (2022). Illuminating informal cross-border trade in processed small pelagic fish in West Africa. *Maritime Studies*, 21(4), 519-532. <https://doi.org/10.1007/s40152-022-00284-z>
- Baird, R. (2004). Illegal, unreported and unregulated fishing: an analysis of the legal, economic and historical factors relevant to its development development and persistence. *Melbourne Journal of International Law*, 5(2), 299-334. <https://search.informit.org/doi/10.3316/agispt.20052393>
- Bank of Ghana. (2008). The Fishing Sub-Sector and Ghana's Economy. Retrieved from https://www.bog.gov.gh/wp-content/uploads/2019/07/fisheries_completerpdf.pdf
- Barbesgaard, M. (2019). Ocean and land control-grabbing: The political economy of landscape transformation in Northern Tanintharyi, Myanmar. *Journal of Rural Studies*, 69, 195-203.

- Bassett, T. J., & Gautier, D. (2014). Regulation by territorialization: the political ecology of conservation & development territories. Introduction. *EchoGéo*, (29).
<https://doi.org/10.4000/echogeo.14038>
- Bavinck, M. (2005). Understanding fisheries conflicts in the South-a legal pluralist perspective. *Society and Natural Resources*, 18(9), 805-820.
<https://doi.org/10.1080/08941920500205491>
- Bavinck, M., Berkes, F., Charles, A., Dias, A. C. E., Doubleday, N., Nayak, P., & Sowman, M. (2017). The impact of coastal grabbing on community conservation—a global reconnaissance. *Maritime Studies*, 16(1), 1-17. <https://doi.org/10.1186/s40152-017-0062-8>
- Beitl, C. M. (2012). Shifting policies, access, and the tragedy of enclosures in Ecuadorian mangrove fisheries: Towards a political ecology of the commons. *Journal of Political Ecology*, 19.
- Belhabib, D., Cheung, W. W. L., Kroodsmas, D., Lam, V. W. Y., Underwood, P. J., & Viridin, J. (2020). Catching industrial fishing incursions into inshore waters of Africa from space. *Fish and Fisheries*, 21(2), 379-392. <https://doi.org/10.1111/faf.12436>
- Belhabib, D., Sumaila, U. R., Lam, V. W., Zeller, D., Le Billon, P., Abou Kane, E., & Pauly, D. (2015). Euros vs. Yuan: comparing European and Chinese fishing access in West Africa. *PLoS ONE*, 10(3). <https://doi.org/10.1371/journal.pone.0118351>
- Belton, B., Marschke, M., & Vandergeest, P. (2019). Fisheries development, labour and working conditions on Myanmar's marine resource frontier. *Journal of Rural Studies*, 69, 204-213
- Benjaminsen, T. A., & Bryceson, I. (2012). Conservation, green/blue grabbing and accumulation by dispossession in Tanzania. *Journal of Peasant Studies*, 39(2), 335-355.
<https://doi.org/10.1080/03066150.2012.667405>
- Bennett, E. (2002). The challenges of managing small-scale fisheries in West Africa. *CEMARE Report*, 7334, 61.
- Bennett, E., Neiland, A., Anang, E., Bannerman, P., Rahman, A. A., Huq, S. . . . Clerveaux, W. (2001). Towards a better understanding of conflict management in tropical fisheries: evidence from Ghana, Bangladesh and the Caribbean. *Marine Policy*, 25(5), 365-376.
[https://doi.org/10.1016/S0308-597X\(01\)00022-7](https://doi.org/10.1016/S0308-597X(01)00022-7)
- Bennett, N. J. (2019). In political seas: engaging with political ecology in the ocean and coastal environment. *Coastal Management*, 47(1), 67-87.
<https://doi.org/10.1080/08920753.2019.1540905>
- Britwum, A. O. (2009). The gendered dynamics of production relations in Ghanaian coastal fishing. *Feminist Africa*.
https://ir.ucc.edu.gh/xmlui/bitstream/handle/123456789/3635/AOBritwum_12_feature.pdf?sequence=1&isAllowed=y

- Bush, S. R., & Marschke, M. (2016). Social and political ecology of fisheries and aquaculture in Southeast Asia. In *Routledge Handbook of the Environment in Southeast Asia* (pp. 242-256). Routledge.
- Charles, A. T. (1992). Fishery conflicts: a unified framework. *Marine Policy*, 16(5), 379-393. [https://doi.org/10.1016/0308-597X\(92\)90006-B](https://doi.org/10.1016/0308-597X(92)90006-B)
- Childs, J. R., & Hicks, C. (2019). Securing the blue: political ecologies of the blue economy in Africa. *Journal of Political Ecology*, 26(1), 323-340. <https://doi.org/10.2458/v26i1.23162>
- Citineewsroom.com (2019, April). Jailing Aisha Huang wouldn't have solved Ghana's problems – Osafo Maafo. <https://citineewsroom.com/2019/04/jailing-aisha-huang-wouldnt-have-solved-ghanas-problems-osafo-mafo/>
- Coastal Resources Center (2018). Fisheries and Food Security: A briefing from the USAID/Ghana Sustainable Fisheries Management Project, January 2018. Narragansett, RI: Coastal Resources Center, Graduate School of Oceanography, University of Rhode Island. GH2014_POL055_CRC 15 pp.
- Danquah, J. A., Roberts, C. O., & Appiah, M. (2021). Effects of decline in fish landings on the livelihoods of coastal communities in Central Region of Ghana. *Coastal Management*, 49(6), 617-635.
- Doumbouya, A., Camara, O. T., Mamie, J., Intchama, J. F., Jarra, A., Ceesay, S., ... & Belhabib, D. (2017). Assessing the effectiveness of monitoring control and surveillance of illegal fishing: The case of West Africa. *Frontiers in Marine Science*, 4, 50. <https://doi.org/10.3389/fmars.2017.00050>
- Dovlo, E., Amador, K., & Nkrumah, B. (2016). Report on the 2016 Ghana Marine Canoe Frame Survey. *Ministry of Fisheries and Aquaculture Development, Fisheries Scientific Survey Division, Information Report No 36*.
- DuBois, C., & Zografos, C. (2012). Conflicts at sea between artisanal and industrial fishers: Inter-sectoral interactions and dispute resolution in Senegal. *Marine Policy*, 36(6), 1211-1220. <https://doi.org/10.1016/j.marpol.2012.03.007>
- Environmental Justice Foundation (EJF) (2018). China's hidden fleet in West Africa: A spotlight on illegal practices within Ghana's industrial trawl sector. Retrieved from <https://ejfoundation.org/resources/downloads/China-hidden-fleet-briefing-v2.pdf> (accessed 12 March 2021).
- Environmental Justice Foundation (EJF) (2021). Recommendation for the reform of Ghana's Inshore Exclusion Zone (IEZ) reserved for small-scale fishing activities. Policy Brief. https://ejfoundation.org/resources/downloads/Briefing_extension_IEZ_boundary-2021-v2a.pdf
- Environmental Justice Foundation (EJF) (2022). ON THE PRECIPICE: Crime and corruption in Ghana's Chinese-owned trawler fleet: https://ejfoundation.org/resources/downloads/On-the-precipice_crime-and-corruption-in-Ghanas-Chinese-owned-trawler-fleet.pdf

- Environmental Justice Foundation (EJF) (2022). ON THE PRECIPICE: Crime and corruption in Ghana's Chinese-owned trawler fleet. https://ejfoundation.org/resources/downloads/On-the-precipice_crime-and-corruption-in-Ghanas-Chinese-owned-trawler-fleet.pdf
- Eriksen, S. S., Akpalu, W., & Vondolia, G. K. (2018). The Fisheries Sector in Ghana: A Political Economy Analysis. Norsk Utenrikspolitisk Institutt.
- Fabinyi, M., Dressler, W., & Pido, M. (2019). Access to fisheries in the maritime frontier of Palawan Province, Philippines. *Singapore Journal of Tropical Geography*, 40(1), 92-110. <https://doi.org/10.1111/sjtg.12260>
- FAO. (2016). Fishery and Aquaculture Country Profiles - The Republic of Ghana. Retrieved from <http://www.fao.org/fishery/facp/GHA/en> (accessed 22 June 2021).
- Fisheries Act (2002). Government of Ghana. <https://www.mofad.gov.gh/wp-content/uploads/2016/05/Fisheries-Act-2002-Act-625.pdf> (accessed 2 August 2021)
- Foukona, J. D. & M. G. Allen (2017). Urban Land in Solomon Islands: Powers of Exclusion and Counter-Exclusion. In S. McDonnell, M. G. Allen and C. Filer (eds), *Kastom, Property and Ideology: Land Transformations in Melanesia*. Canberra: Australia National University Press.
- Friends of the Nation (2015). Baseline for Prosecutions: Summary of Fisheries Arrests and Prosecution in the Western and Eastern Commands. The USAID/Ghana Sustainable Fisheries Management Project (SFMP). Narragansett, RI: Coastal Resources Center, Graduate School of Oceanography, University of Rhode Island and Friends of the Nation. GH2014_POL013_FoN. 30 pp.
- Ghana Health Service (2021). Covid-19: Ghana's Outbreak Response Management Updates. Retrieved from <https://www.ghanahealthservice.org/covid19/> (accessed 29 June 2021)
- Ghana Statistical Service (2020). Population and Housing Census (PHC). https://census2021.statsghana.gov.gh/dissemination_details.php?disseminatereport=MjYzOTE0MjAuMzc2NQ==&Publications
- Global Times (2020). China-aided port to boost Ghana's fishing industry. Retrieved from <https://www.globaltimes.cn/content/1205012.shtml> (accessed 14 July 2021)
- Gupta, C., & Sharma, M. (2004). Blurred borders: Coastal conflicts between India and Pakistan. *Economic and Political Weekly*, 3005-3015. <https://www.jstor.org/stable/4415232>
- Hall, D., Hirsch, P., & Li, T. M. (2011). Powers of exclusion: land dilemmas in Southeast Asia. National University of Singapore (NUS) Press, Singapore
- Hammond, J., & Gibbons, P. (2005). What is scaffolding. *Teachers' voices*, 8, 8-16. National Centre for English Language Teaching and Research Macquarie University Sydney NSW.

- Hasselberg, A. E., Aakre, I., Scholtens, J., Overå, R., Kolding, J., Bank, M. S., ... & Kjelleevold, M. (2020). Fish for food and nutrition security in Ghana: Challenges and opportunities. *Global Food Security*, 26, 100380. <https://doi.org/10.1016/j.gfs.2020.100380>
- Hen Mpoano (2021). Securing Sustainable Fisheries project Factsheet. <https://henmpoano.org/publications/fisheries/> (accessed 23 August 2021)
- Homer-Dixon, T. F. (2010). *Environment, scarcity, and violence*. Princeton University Press.
- Ibrahim, M. (2019). An application of optimal control to the marine artisanal fishery in Ghana. *Commun. Math. Biol. Neurosci.*, 2019, Article ID 22.
- Kalina, M. R., Mbereko, A., Maharaj, B., & Botes, A. (2019). Subsistence marine fishing in a neoliberal city: a political ecology analysis of securitization and exclusion in Durban, South Africa. *Journal of Political Ecology*, 26(1), 363-380. <https://doi.org/10.2458/v26i1.23008>
- Kansanga, M. M., Arku, G., & Luginaah, I. (2019). Powers of exclusion and counter-exclusion: The political ecology of ethno-territorial customary land boundary conflicts in Ghana. *Land Use Policy*, 86, 12-22. <https://doi.org/10.1016/j.landusepol.2019.04.031>
- Kassah, J. E., & Asare, C. (2022). Conflicts in the artisanal fishing industry of Ghana: reactions of fishers to regulatory measures. In *Blue Justice: Small-Scale Fisheries in a Sustainable Ocean Economy* (pp. 99-118). Cham: Springer International Publishing.
- Kolding, J., Béné, C., & Bavinck, M. (2014). Small-scale fisheries: Importance, vulnerability and deficient knowledge. *Governance of marine fisheries and biodiversity conservation: Interaction and coevolution*, 317-331. <https://doi.org/10.1002/9781118392607.ch22>
- Lazar, N., Yankson, K., Blay, J., Ofori-Danson, P., Markwei, P., Agbogah, K., . . . Bilisini, W. (2018). Status of the small pelagic stocks in Ghana and recommendations to achieve sustainable fishing 2017. *Scientific and Technical Working Group. USAID/Ghana Sustainable Fisheries Management Project (SFMP). Coastal Resources Center, Graduate School of Oceanography, University of Rhode Island. GH2014_SCI042_CRC*.
- Lyngsie, G., Awadzi, T., & Breuning-Madsen, H. (2011). Origin of Harmattan dust settled in Northern Ghana—Long transported or local dust?. *Geoderma*, 167, 351-359.
- Mallory, G. T., & Panel, V. (2012). China as a distant water fishing nation. *US-China Economics and Security Review Commission, John Hopkins School of Advanced International Studies*.
- Mansfield, B. (2010). 'Modern' industrial fisheries and the crisis of overfishing. In *Global Political Ecology* (pp. 98-113): Routledge.
- Marshall, C., & Rossman, G. B. (2014). *Designing qualitative research*: Sage publications.

- McDougall, C., Akester, M., Notere Boso, D., Choudhury, A., Hasiba, Z., Karisa, H., . . . Scott, J. (2020). Ten strategies for research quality in distance research during COVID-19 and future food system shocks. *Penang, Malaysia: CGIAR Research Program on Fish Agri-Food Systems. Program Brief: FISH-2020-11.*
- MoFAD. (2015). National Fisheries Management Plan, Government of Ghana. *pp48.*
- Nyiauwung, R. A., Bennett, N. J., & Loring, P. A. (2023). Understanding change, complexities, and governability challenges in small-scale fisheries: a case study of Limbe, Cameroon, Central Africa. *Maritime Studies, 22*(1), 7.
- Nolan, C., Delabre, I., Menga, F., & Goodman, M. K. (2022). Double exposure to capitalist expansion and climatic change: a study of vulnerability on the Ghanaian coastal commodity frontier. *Ecology and Society, 27*. <https://doi.org/10.5751/ES-12815-270101>
- Nolan, C. (2019). Power and access issues in Ghana's coastal fisheries: a political ecology of a closing commodity frontier. *Marine Policy, 108*, 103621. <https://doi.org/10.1016/j.marpol.2019.103621>
- Nunoo, F. K. E., Asiedu, B., Amador, K., Belhabib, D., Lam, V., Sumaila, R., & Pauly, D. (2014). Marine fisheries catches in Ghana: Historic reconstruction for 1950 to 2010 and current economic impacts. *Reviews in Fisheries Science and Aquaculture, 22*(4), 274-283. <https://doi.org/10.1080/23308249.2014.962687>
- Okafor-Yarwood, I., Kadagi, N. I., Belhabib, D., & Allison, E. H. (2022). Survival of the Richest, not the Fittest: How attempts to improve governance impact African small-scale marine fisheries. *Marine Policy, 135*, 104847. <https://doi.org/10.1016/j.marpol.2021.104847>
- Okeke-Ogbuafor, N., Gray, T., & Stead, S. M. (2020). Is there a 'wicked problem' of small-scale coastal fisheries in Sierra Leone? *Marine Policy, 118*. <https://doi.org/10.1016/j.marpol.2019.02.043>
- Ostrom, E. (1990). *Governing the commons: The evolution of institutions for collective action.* Cambridge University Press.
- Overå, R. (2011). Modernization narratives and small-scale fisheries in Ghana and Zambia. *Forum for Development Studies, 38*:3, 321-343. <https://doi.org/10.1080/08039410.2011.596569>
- Pauly, D., & Zeller, D. (2020). Sea Around Us Concepts, Design and Data. searoundus.org.
- Penney, R., Wilson, G., & Rodwell, L. (2017). Managing sino-ghanaian fishery relations: A political ecology approach. *Marine Policy, 79*, 46-53. <https://doi.org/10.1016/j.marpol.2017.02.008>
- Pomeroy, R., Parks, J., Mrakovcich, K. L., & LaMonica, C. (2016). Drivers and impacts of fisheries scarcity, competition, and conflict on maritime security. *Marine Policy, 67*, 94-104. <https://doi.org/10.1016/j.marpol.2016.01.005>

- Pomeroy, R., Parks, J., Pollnac, R., Campson, T., Genio, E., Marlessy, C., ... & Hue, N. T. (2007). Fish wars: Conflict and collaboration in fisheries management in Southeast Asia. *Marine Policy*, 31(6), 645-656. <https://doi.org/10.1016/j.marpol.2007.03.012>
- Purwins, S. (2020). Bauxite mining at Atewa Forest Reserve, Ghana: a political ecology of a conservation-exploitation conflict. *GeoJournal*, 1-13. <https://doi.org/10.1007/s10708-020-10303-3>
- Ramsbotham, O., Miall, H., and Woodhouse, T. (2011). *Contemporary conflict resolution: Polity*.
- Robbins, P. (2019). *Political ecology: A critical introduction* (Vol. 16): John Wiley & Sons.
- Saldana, J. (2011). *Fundamentals of Qualitative Research*: OUP USA.
- Sarpong, D. B., Quatey, S. N., & Harvey, S. K. (2005). The Economic and Social Contribution of Fisheries to Gross Domestic Product and Rural Development in Ghana. *Food and Agriculture Organization of The United Nations (FAO)*.
- Seto, K. L. (2017). *Local fishery, global commodity: Conflict, cooperation, and competition in Ghana's coastal fisheries*. UC Berkeley.
- Seto, K., Easterday, K., Aheto, D., Asiedu, G., Sumaila, U. R., & Gaynor, K. (2023). Evidence of spatial competition, over resource scarcity, as a primary driver of conflicts between small-scale and industrial fishers. *Ecology and Society*, 28(1). <https://doi.org/10.5751/ES-13650-280106>
- Strauss, A., & Corbin, J. (1990). *Basics of Qualitative Research*: Sage publications.
- Turner, M. D. (2004). Political ecology and the moral dimensions of 'resource conflicts': the case of farmer–herder conflicts in the Sahel. *Political Geography*, 23(7), 863-889. <https://doi.org/10.1016/j.polgeo.2004.05.009>
- Walley, C.J., (2004). *Rough Waters: Nature and Development in an East African Marine Park*. Princeton (NJ): Princeton University Press
- World Bank. (2021). Data for Lower middle income, Ghana. Retrieved from <https://data.worldbank.org/?locations=XN-GH> (accessed 18 February 2021)

Chapter 4

Blue economy: Industrialisation and Coastal Fishing Livelihoods in Ghana

Abstract

The growing focus on the blue economy is accelerating industrial fishing in many parts of the world. This intensification is affecting the livelihoods of small-scale fishers, processors, and traders by depleting local fishery resources, damaging fishing gears, putting fishers' lives at risk, and compromising market systems and value chain positions. In this article, we outline the experiences, perspectives, and narratives of the small-scale fishing actors in Ghana. Drawing on qualitative interview data, we examine the relationship between small-scale and industrial fisheries in Ghana using political ecology and sustainable livelihood approaches. We demonstrate how industrialised, capital-intensive fishing has disrupted the economic and social organisation of local fishing communities, affecting incomes, causing conflicts, social exclusion and disconnection, and compromising the social identity of women. These cumulative impacts and disruptions in Ghana's coastal communities have threatened the viability of small-scale fisheries, yet coastal fishing actors have few capabilities to adapt. We conclude by supporting recommendations to reduce the number and capacity of industrial vessels, strictly enforce spatial regulations, and ensure 'blue justice' against marginalisation.

Keywords: Artisanal fishing; Industrial fishing; blue justice; harmful fisheries subsidies; Illegal Unregulated and Unreported Fishing; West Africa

4.1 Introduction

Small-scale fisheries account for around 40 percent of global fish catch and support over 113 million fishery workers along the value chain globally, with at least 45 million women involved (IHH, 2021; Teh & Sumaila, 2013). In developing countries, small-scale fisheries are also critical components of the domestic fishery chains and economies of coastal communities, supporting livelihoods, nutrition needs, and social well-being (Schorr, 2005). Moreover, small-scale fisheries' contributions transcend their economic values to encompass social, relational, and historical networks (IHH, 2021; O'Neill & Crona, 2017).

Globally, the expansion of large-scale ocean fisheries has significantly impacted small-scale fisheries by achieving unprecedented levels of overfishing and overproduction (Longo et al., 2011; Mansfield, 2010). Despite initiatives to reduce overfishing, over the last few decades in many locations, governments, international organisations, and multilateral institutions have promoted the industrialisation of the fisheries sector in the pursuit of economic progress and modernisation (Mansfield, 2010; Overå, 2011). Scholars have documented the unequal relations between developed and developing countries in terms of technological advancement and investment in industrial fishing because of the global south's limited resources (Belhabib et al., 2015; Okafor-Yarwood & Belhabib, 2020). They have also highlighted the imbalance in subsidy allocation between large- and small-scale fisheries, with most of the harmful subsidies going to industrial fishing businesses (Schuhbauer et al., 2020; Sumaila et al., 2016; Sumaila et al., 2019). For example, the role of fisheries subsidies in the success of distant trawler fleets in developing countries in Africa and Asia is a global concern for fisheries management (Belhabib et al., 2015; Mallory, 2013). According to Mallory (2016), China spent over \$6.5 billion on fisheries subsidies in 2013, 95 percent of which were harmful to sustainability. These subsidies, of which 94 percent are fuel subsidies, are linked to unsustainable fishing practices in developing countries, including overfishing, overcapacity, and illegal, unreported, and unregulated (IUU) fishing (Mallory, 2016).

Recent studies have underscored the contribution of the global fisheries industry to climate change through large fuel consumption and have emphasised the substantial effects of ocean acidification on marine ecosystems (Ficke et al., 2007; Sala et al., 2022; Sumaila et al., 2011; Wang & Wang, 2022). Recent estimates indicate that worldwide fishing industry emissions increased by 28 percent in total between 1990 and 2011 and that fisheries produced 179 million

tonnes of CO₂-equivalent Greenhouse gases (4 percent of global food production) (Parker et al., 2018). The growth in global fisheries emissions is mostly attributable to increased harvests by fuel-intensive industrial fisheries activities, which depend heavily on fossil fuels for fishing, searching for fish (trawling), and handling, including refrigeration and industrial processing (Parker et al., 2018; Sala et al., 2022). Small-scale fisheries also contribute to the global fisheries' fossil fuel consumption, which comprises mostly of travel to and from fishing grounds. However, most of their passive fishing gear is set and hauled manually or with small motor power, making them one of the world's most efficient forms of animal protein production (Parker & Tyedmers, 2014).

In addition, the expansion of industrial bottom trawling activities by industrial fishing vessels has considerably contributed to the loss of ocean biodiversity (Kuczenski et al., 2022; McConnaughey et al., 2020). A recent assessment by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) (2022), for example, highlights that in marine systems, industrial fishing has had the most impact on biodiversity in the past 50 years through overexploitation. Industrial fishing corporations cover at least 55 percent of the oceans, concentrated in the north-east Atlantic, north-west Pacific, and upwelling zones off the coasts of South America and West Africa (IPBES, 2022). In many developing countries, these trends in global fisheries have created significant social and economic legacies for small-scale fisheries, marine ecosystems, and food security (Kolding & van Zwieten, 2011; Pauly et al., 2005).

The literature on the 'tragedy of the commons' (Hardin, 1998) has frequently been referenced to explain over-exploitation of fisheries, with less emphasis on the influence of industrialisation (Feeny et al., 1996; McWhinnie, 2009). Yet technical advancements in the fisheries sector have accelerated resource depletion, particularly since the second half of the twentieth century (Campling & Colás, 2021). Some researchers contend that fisheries resource exploitation has been intensified by the global industrial revolution facilitated by capital-intensive fishing and private capital accumulation (Berkes et al., 2006; Longo & Clausen, 2011; Mansfield, 2010). Industrialisation and technology have accelerated the expansion and exploitation of marine fisheries in many developing countries beyond their management capability (Berkes et al., 2006; Eriksson et al., 2015). These global patterns of marine resource exploitation have been described as 'contagious resource exploitation' (Eriksson et al., 2015, p.435), a 'tragedy of the commodity' (Longo & Clausen, 2011, p.316) and profit-driven 'roving banditry' (Berkes et al., 2006, p.1557).

We build on this critical lens to demonstrate how the industrial fishing transitions in Ghana have negatively affected small-scale coastal fishing livelihoods.

Recent global and regional initiatives to define Africa's oceans and coastal frontiers as a 'blue economy' have intensified (African Union [AU], 2019; European Investment Bank [EIB], 2021; United Nations Economic Commission for Africa [UNECA], 2016). While stakeholders use the term blue economy in very different ways (Silver et al., 2015; Smith-Godfrey, 2016) and the types of implementation vary, the concept aligns closely with green economy paradigms that aim to stimulate economic growth through the maritime economy while safeguarding ecological sustainability and fostering social inclusion (Bennett et al., 2019; Smith-Godfrey, 2016).

Numerous African nations, including Seychelles, Comoros, Madagascar, Mauritius, Mozambique, and South Africa, are exploring blue economy initiatives (Bolaky, 2020).

Expanding industrial fishing is a major component of Ghana's blue economy. In particular, the National Policy for the Management of the Marine Fisheries Sector 2015-2019 and the revised management plan 2022-2026 share a common objective of reversing the declining trajectory of fisheries resources. These management plans also aim to establish effective management systems that ensure the sustainable utilization of fish stocks. However, it is noteworthy that these are designed not only to achieve ecological goals but also to address economic objectives such as employment creation, contribution to Gross Domestic Product (GDP), and generation of foreign exchange revenue through fisheries (Ministry of Fisheries and Aquaculture Development [MoFAD], 2015, p.1). We draw on this framing which emphasises GDP and financial growth imperatives to argue that industrial fishing seems likely to expand and intensify in Ghana.

Recent developments, such as offshore petroleum exploration and temporary closed-season fishing restrictions, have put coastal fisheries in Ghana under some threat (Adjei & Overå, 2019; Owusu & Andriessse, 2020). In addition, unlike other sectors of the blue economy in Ghana, industrial fishing directly competes with small-scale fishing for coastal fisheries resources, degrading fisher communities' sustainable livelihoods and resilience systems (Nolan, 2019; Seto, 2017). While acknowledging small-scale fishers' human agency and capacity for adaptation, such measures are limited to coping actions (Freduah et al., 2018) and do not address the fundamental impact of industrial fishing in Ghana.

In most developing countries, fishery problems have deep historical, cultural, and political roots (Bavinck, 2005; Okeke-Ogbuafor et al., 2020). In this study of fisheries livelihoods, we used a

qualitative approach to draw on the experiences, views, and narratives of small-scale actors who are usually excluded from fisheries management (Martins et al., 2018). We discuss the impacts of industrial fishing on small-scale livelihoods, emphasising the need for inclusion and protection of small-scale fishing in Ghana's aspirations for the blue economy. Our paper broadly contributes to the growing blue justice literature aimed at safeguarding small-scale fisheries globally.

4.2 Methods and materials

4.2.1 Ghana's industrial fishing transformation

After beginning in the 1950s as part of a state-led development reform strategy to maximise catch of Ghana's then enormous fish stocks and as an economic strategy to modernise and diversify the economy, the industrialisation of the country's fisheries expanded by the early 2000s to incorporate joint ventures and lease finance agreements (Akpalu & Eggert, 2021; Bank of Ghana, 2008; Nunoo et al., 2014). According to reconstructed data from the Sea Around Us Initiative, Ghanaian fisheries had much higher catches per unit of effort in the 1950s compared to more recent decades, despite low productivity (see Pauly & Zeller, 2015 for full methods and data description). In 1952, the Colonial Fisheries Department imported two 30-foot motorised boats from the United Kingdom for testing purposes, which proved effective and led to the establishment of a local boatyard production corporation (Acquay, 1992; Akyeampong, 2007). In the 1960s, Ghana's first president, Osagyefo Kwame Nkrumah, established the State Fishing Corporation (SFC), acquired state trawler fishing vessels, and constructed cold storage facilities, including the expansion of the Tema Harbour (Bennett & Bannerman, 2002; Overå, 2011). By the 1970s, the SFC fleet had grown to 34 vessels operating in Ghana and neighbouring nations. However, with ratification of the United Nations Convention on the Law of the Sea in 1982, these vessels were repatriated to Ghana's limited continental shelf, increasing strain on its maritime waters (Akpalu & Eggert, 2021; Atta-Mills et al., 2004). The SFC subsequently collapsed due to Ghana's economic challenges, political instability, and technical and managerial difficulties (Bank of Ghana, 2008; Nunoo et al., 2014).

A fisheries law (Fisheries Decree, 1979) established the framework for joint ventures (JVs), allowing Ghanaians to control at least 50 percent of JV firms. This policy reform has been described as the first significant step towards expanding foreign private sector participation in industrial trawler fishing in the country (Acquay, 1992). In the 1980s, in response to Ghana's economic decline, the government implemented a structural adjustment program (SAP) with the

support of the World Bank (Acquay, 1992; Bennett, 2002). As part of the SAP, Ghana's currency was devalued, trade barriers were removed, inefficient state-owned enterprises were privatised, and the civil service was restructured. Acquay (1992) observed that the SAP had three broad implications for Ghana's maritime fisheries. First, the devaluation was an incentive for JV firms to expand and intensify their harvests and exports. In contrast, locally owned fishing firms, including the SFC, were forced to liquidate due to high overhead costs from imported fishing inputs and gear. Second, foreign direct investment increased, leading to the significant growth of JV industrial trawlers from Europe and Asia. Third, the Fishery Department's staff numbers were reduced and employment was restricted, affecting its capacity to research, manage, and enforce the reduction in excess fishing in Ghana.

A subsequent fisheries law (Fisheries Act 625, 2002) limited foreign capital in industrial fishing to tuna (Akpalu & Eggert, 2021). The law also restricted industrial trawling to Ghanaians, the government, or a company or partnership wholly owned by Ghanaians, and it prohibited foreign beneficiary ownership. It also permitted lease-type financing agreements with foreign firms, such as hire-purchase, chartering, and rental of vessels and fishing gear. While these reforms sought to maximise local gains from Ghana's industrialisation and increase domestic economic growth through fisheries resources (Bennett, 2002), local entrepreneurs resorted to leasing from Chinese companies due to the difficulty of raising domestic financing to run capital-intensive industrial trawlers. However, these lease-type commercial arrangements evolved into what has been labelled as an illegal strategy (Environmental Justice Foundation [EJF], 2018) used by distant-water fishing companies to operate industrial trawler fishing (Belhabib et al., 2015; Belhabib et al., 2020), and by the time of the fieldwork in 2021, constituted a major form of arrangement used by industrial fishing trawlers in Ghana. For instance, Ghanaian entrepreneurs might obtain the licences while their Chinese partners provide finance and retain significant portions of the profit (Environmental Justice Foundation [EJF], 2018).

The proliferation of Chinese trawlers, which target most of the local catch, has resulted in these stocks' dramatic decline (EJF, 2018; Failler & Binet, 2011). A recent stock assessment by the Ghana Fisheries Commission shows increased fishing effort over the last decade, yet the fleet's catch per unit of effort has decreased except for the tuna fleet (MoFAD, 2015). Local fishers began purchasing rejected fish from commercial trawlers in reaction to the reduction in catch rates (Nunoo et al., 2009). This increased demand for 'trash fish' (locally called *saiko*) and

bycatch resulted in a massive domestic market boom and encouraged transshipment involving local community entrepreneurs. Thus, the depletion of coastal fisheries in Ghana has primarily been due to licenced trawlers either operating in the artisanal fishing zone or employing illicit fishing gear and conducting illegal transshipments (Nunoo et al., 2014). Although the steady growth in the number of small-scale fishing canoes has also compounded the decline of coastal fisheries, this study examines the impacts of industrial fisheries on small-scale fishing chains.

The geographical range of operations for different fisheries types is divided into the Inshore Exclusive Zone and the Exclusive Economic Zone. In principle, Ghana's Inshore Exclusion Zone is reserved for small-scale fishing (Fisheries Act 625, 2002), but this is rarely the case in practice due to lack of enforcement capacity. Local Non-Governmental Organisation (NGO) data indicates that all industrial trawler arrests in Ghana between 2007 and 2015 related to territorial violations (Friends of the Nation, 2015). The small-scale fishing sector in Ghana consists of motorised and non-motorised canoes ranging in length from 3 to nearly 20 metres (MoFAD, 2015). Ghana has an open-access policy for small-scale fisheries, although the Fisheries Law (Act 625) stipulates that in order to fish, small-scale fishers must first register with their local district assembly. Approximately 200,000 fishers operate around 12,000 small-scale fisheries canoes in 334 fishing community landing centres in Ghana (Adjei & Overå, 2019). Small-scale fishers frequently employ beach seines, line, set nets, gillnets (locally called *ali*), and drift gill nets (Lazar, 2018). Most of the small-scale catch is processed and marketed in domestic markets in the local and bigger cities, with a considerable amount also exported to neighbouring Togo, Benin, Cote d'Ivoire, and Nigeria (Ayilu et al., 2016). However, the total catch volume of small pelagic catch targeted by the local small-scale fisheries has steadily declined over the years, though with rising number of canoes, putting local livelihoods under threat (Figure 4.1). The increase in small canoes in Ghana can be attributed to population growth and an increase in fishing effort as a result of dwindling fish stocks (Lazar et al., 2018). Fishers have adapted their livelihoods through both legal and illegal measures, such as internal and external migration (Bortei-Doku, 1991; Overå, 2005), as well as fishing with explosives, poisons, aggregating devices, and monofilament nets (Freduah et al., 2018). Small-scale processors leverage smokeless ovens (Ahotor and FAO-Thiaroye Technique) to minimise processing losses resulting from burns to the fish and to improve fish quality for premium prices (Mindjimba et al., 2019; Seyram, 2020).

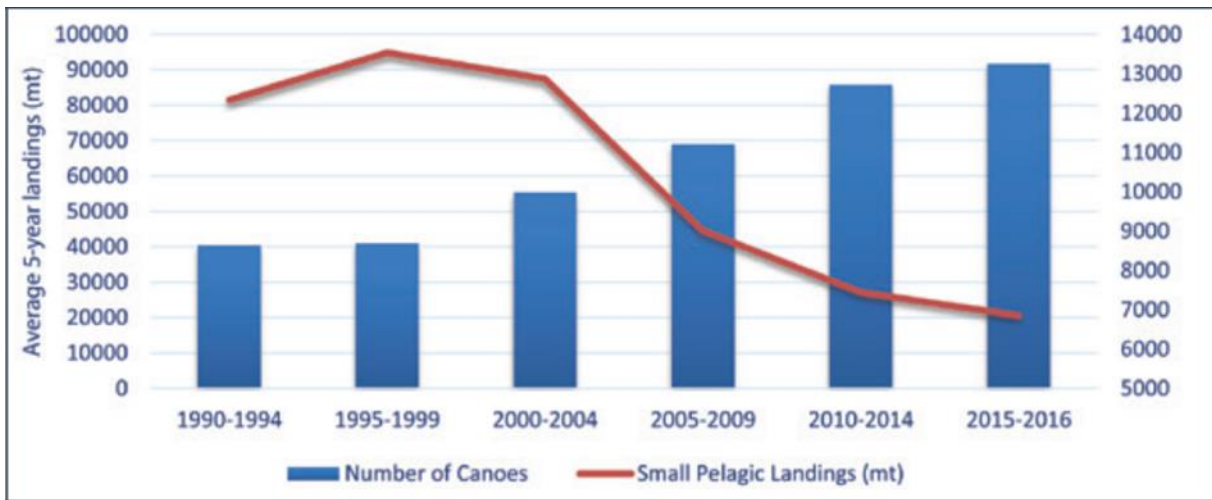


Figure 4. 1: Graph showing the average landings of small pelagic stocks (red line) and fishing effort (number of canoes) (blue bars) from 1990 to 2016

Source: Lazar et al. (2018), reproduced with permission

4.2.2 Study areas

The study was conducted in two of Ghana's coastal regions, the Western Region and the Greater Accra Region (Figure 4.2). These regions are the country's industrial and commercial centres, with considerable infrastructure, including Ghana's only two commercial ports and its two largest industrial fishing ports, Sekondi-Takoradi and Tema. Ghana's industrial vessel fleets are classified into three categories: the semi-industrial sector, the industrial sector (mostly comprised of trawlers), and industrial foreign tuna vessels. Together, these two regions have 15 of Ghana's 26 coastal administrative districts, with the total small-scale fisher population estimated at about 26,000 in the Greater Accra Region and 34,000 in the Western Region (Dovlo et al., 2016).

This study focuses on eight fishing communities that are important fishing towns for small pelagic catches in the two regions, with fish processing and trading being the primary occupations of most of the women residents. The key features of the study locations and districts are summarised in Table 4.1, and their locations in Figure 4.2. Table 4.1 shows the number of small-scale fishing fleets and people who engage in fishing in the various localities, as well as the average catch quantities, underscoring the importance of small-scale fishing to the local economies. These communities were drawn from seven of the coastal administrative districts where small-scale fishing constitutes a significant economic activity, and they were purposively selected (Marshall & Rossman, 2014) for one or all of the following reasons: 1) their proximity to the commercial fishing port where the industrial fishing vessels land and begin their fishing; 2)

their contribution to small-scale fisheries catch; and 3) their listing as a community in Ghana's Fisheries Scientific Division's Marine Canoe Survey Framework of the Ministry of Fisheries and Aquaculture Development (Dovlo et al., 2016). Ghana's Fisheries Scientific Division's Marine Canoe Survey indicate that the catch quantities in the communities vary based on a number of reasons, including the number of fishers, the variation in fishing capability in terms of fishing gears, and the seasonal fluctuations in the fishery across the coastal villages.

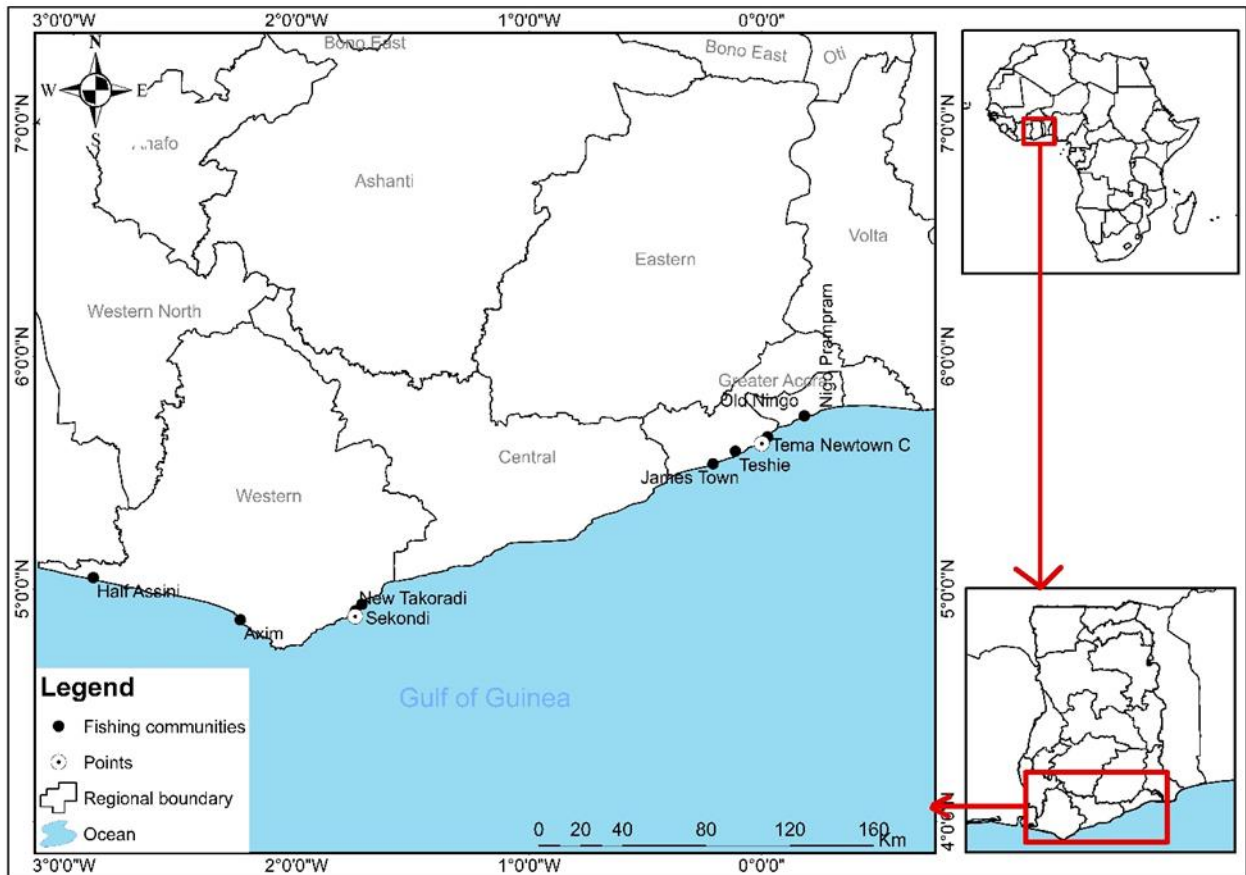


Figure 4. 2: Map of the Western Region and Greater Accra Region of Ghana, with the studied communities indicated with dots.

Source: Author, 2022

Table 4. 1: Characteristics of the study communities and districts

Study communities	Tema New Town	James Town	Teshie	Ningo-Prampram	Sekondi and New Takoradi	Axim	Half Assini
Administrative Area	Tema Metropolitan Assembly	Accra Metropolitan Assembly	Ledzokuku-Krowor Municipal	Ningo-Prampram Municipal	Sekondi/Takoradi Metropolitan	Nzema East Municipal	Jomoro Municipal
Population	212,926	555,767	128,675	89,387	435,009	80,933	129,163
Land Area (Km ²)	88	140	48	622	192	1,084.0	1,495
Numbers of Small-scale fishing fleets	574	470	130	555	664	657	405
Number of Small-scale fishers	5,340	2,981	1,573	5,439	4,542	5,405	6,614
Major fishing gear	Purse net Line Set net	Purse net Line Set net Drift net	Purse net Set net	Purse net Line Set net	Purse net Line Set net Ali net	Purse net Line Set net Ali net Drift net	Purse net Beach seine Set net Ali net
Five years Average Catch (MT)	4,000	52,902	2,500	1,000	5,000	6,200	825

Source: Ghana Statistical Service (2010); Ghana Canoe Survey Framework (Dolvo et al., 2016)

4.2.3 Data collection

Our data triangulation approach in this study included in-depth individual interviews and focus group discussions (FGDs) (Jonsen & Jehn, 2009). Field data were collected between January 2021 and June 2021, coinciding with the COVID-19 pandemic. The lead author participated in most field interviews using video conferencing software (Zoom.us)¹. During the data collection

¹ The lead author could not travel to Ghana for the interviews, therefore he worked with the fourth co-author, who was in Ghana.

period, domestic restrictions were eased, and fishing recommenced in the local coastal communities. The interviews were conducted using a COVID-19 safe-research protocol checklist (McDougall et al., 2020) and Ghana Health Service (2021) COVID-19 health advice protocols.

In Ghanaian coastal communities, the chief fisherman and chief fish processor are the traditional custodians of fisheries and relate with external stakeholders on behalf of fishing actors (Ameyaw et al., 2021; Bennett & Bannerman, 2002). These community leaders constituted the key informants for the in-depth interviews (n = 16) (i.e. two key informant interviews in each community). The FGDs (n = 2) in each community included one (n = 1) with five small-scale fishers and another one (n = 1) with five fish processors/traders. The participants who formed the FGDs (n = 16) were part of the governing council of the chief fisherman and the chief fish processor, and they were drawn from different landing beaches within the community. In total, we conducted 16 interviews and 16 FGDs were conducted, comprising 96 participants across the communities: Western Region (24 men, 24 women) and Greater Accra Region (24 men, 24 women). These participants had been involved in the local fisheries of the community for at least a decade and had extensive experience and history regarding local fisheries livelihoods. In Ghana, both men and women are actively involved in small-scale fisheries. However, the division of labour is sex-segregated; with few exceptions, males work as fishers and women work as processors/traders (Walker, 2001). We purposively recruited both fishers (men) and processors/traders (women) to reflect this gendered division of labour in Ghana's small-scale fisheries value chain.

All informants verbally consented to participate in the study. The topics covered during the focus group discussions (FGDs) and individual key informant interviews (KEIs) included the effects of declining coastal fisheries on social cohesion and inclusion, community conflicts and disconnections, fish trading and processing, income level and the day-to-day livelihoods of fishing actors, as well as coastal cultural institutions, including traditions, norms and identity. The interviews lasted 30 to 90 minutes on average. Field interviews were conducted in Ga and Fante, two of the native languages spoken in the study communities. The fourth co-author is fluent in the Fante language and conducted those interviews. The Ga interviews were conducted with the assistance of an interpreter.

4.2.4 Data analysis

The interviews were recorded with permission, translated, and transcribed. The Fante interviews were translated verbatim into English by the fourth co-author and the Ga interviews were translated into English using an interpreter; both sets of interviews were then transcribed. We used thematic content analysis, which involved the reading, scrutinising, identifying themes, and threading up of themes from the transcripts. First, the transcribed interviews notes were read manually to identify key emerging trends. Second, the interview notes were imported into NVIVO 12 for coding and theme comparison for validity. The lead author initially coded the data, which was subsequently validated by the second co-author. We generated seven themes in total from the coding, which were then integrated and qualitatively analysed using the assets conceptualisation of the sustainable livelihood framework (Allison & Ellis, 2001; Scoones, 2015). Additionally, direct quotations from selected participants are used where appropriate to provide a complete argument.

The theoretical framing for the data analysis draws from the sustainable livelihood framework and political ecology. The sustainable livelihood approach builds upon the concepts of entitlements and capabilities introduced by Sen in 1981. Sen defines capabilities as the range of possibilities that individuals have in terms of what they can do or be with their entitlements. This perspective goes beyond purely material concerns such as food intake, income, or human capital, and encompasses a broader understanding of well-being and capability. It includes intrinsic elements like self-esteem, security, happiness, stress, vulnerability, power, and exclusion, in addition to more conventionally measured material aspects (Sen, 1981).

Expanding on Sen's ideas, the sustainable livelihood framework examines various dimensions of livelihoods, incorporating the context of vulnerability, asset portfolios, livelihood strategies, and institutions that mediate the ability to attain (or fail to attain) such outcomes (Scoones, 1998; Chambers & Conway, 1992). The framework outlines the assets and activities required by people and households to meet their livelihood needs and deal with pressures, disruptions, and perturbations (Scoones, 2015). In particular, the sustainable livelihood framework examines the interrelationships of people's assets (human, financial, physical, natural, and social) and the pursuit of their livelihoods at the individual, household, or community level (Scoones, 1998). This analytical approach has been extensively used to study various aspects of livelihoods, including vulnerability, impacts of shocks, and adaptive responses (Allison & Ellis, 2001;

Ferrol-Schulte et al., 2013). Livelihoods become vulnerable when the assets required for their social, economic, and ecological systems to adapt, adjust, and respond are weakened or eroded (Adger, 2006).

In West Africa, fisheries development and management projects first adopted the sustainable livelihood framework to assess small-scale fisheries in the 1990s (Allison & Horemans, 2006; DfID, 1999). In the current study, we used the sustainable livelihood framework specifically to explain the impacts of marine industrial fishing on the livelihood assets of small-scale fishers (Bennett & Dearden, 2014; Owusu & Andriessse, 2020). As a result, the sustainable livelihood framework's existing five capital assets - human, financial, physical, natural, and social - have been reorganised as economic (including financial and physical), social, and natural assets. This reorganisation revealed how specific livelihood assets are related, which is particularly useful for assessing fishers' livelihood prospects and limitations.

The interview data reflects the interactions between small-scale and industrial fishers in Ghanaian fishing communities, with a focus on the livelihood assets most impacted by these interactions. By fishing with nets, canoes, and other fishing gear, as well as by fish processing and trading, these communities derive incomes principally from economic assets, both financial and physical. Their social assets include their culture, history, and social networks, which all revolve around everyday fishing. The ocean is a natural asset that which includes the fishers' knowledge of its ecology along with the value-chain players' competence and capabilities.

Despite the usefulness of the sustainable livelihood framework, it has been criticised for insufficiently incorporating the dynamics of power and historical patterns of change in mediating access to environmental resources (De Haan & Zoomers, 2005). In our analysis, in addition to emphasising the importance of livelihood assets, we also use a political ecology approach that emphasises the importance of 'scale, history, conflict and power relations' (Nolan, 2019, p. 12), which influence resource access and the politics around fishers' livelihoods (Bryant, 1992; Robbins, 2011). Ghanaian industrial fishing emerged as a historical outcome, hence its growth into coastal areas represents a capitalist expansion and the failure of fisheries management underscores power imbalances (Mansfield, 2010; Nolan, 2019). In summary, we used the intersecting theoretical underpinnings of SLA and political ecology to explore how the expansion of industrial fishing in Ghana has interrupted and damaged not only the sustainable livelihood assets of coastal fisheries actors, but also their ability to respond effectively.

4.3.5 Limitations

The research focused on understanding the concerns of small-scale fisheries. However, the inability to interview industrial fishers due to the COVID-19 pandemic and the difficulty with access constitute a limitation. To address this gap, we reviewed existing literature and drew on the authors' experiences as fisheries researchers in developing countries, particularly the first author's Ghanaian experiences. While this research addresses issues raised in the literature and allegations made by the small-scale fishers and processors we interviewed, it does not seek to provide factual evidence of specific instances of wrongdoing.

4.4 Results and discussion

This section provides a qualitative explanation of the disruption to local fisheries actors' economic, social, cultural, natural, and human assets, as well as the reduction in their livelihoods and well-being caused by industrial-scale fishing activities. The results in this section constitute common themes based on the responses, comments, and experiences of the actors interviewed regarding the impacts of the industrial fishing.

4.4.1 Economic (financial and physical) assets

4.4.1.1 Income and livelihood

In Ghana, access to sufficient fish, in terms of both quality and quantity, is no longer a privilege reserved for local communities; it is now available to technologically advanced foreign commercial trawlers (Nolan, 2019; Nunoo et al., 2014). The expansion of industrial trawlers' activities into local fishing grounds, mostly at night, has caused small-scale fishers to withdraw, allowing industrial trawlers to exploit and overfish the pelagic species. The industrial vessels use adapted fishing gear (for example, illegal small-mesh nets) to target these species in coastal protected areas. The number of industrial fishing vessels has increased in Ghana through massive Chinese investment (Akpalu & Eggert, 2021; EJF, 2018), a situation that has affected how, where, what, and for how long local fishers can actually catch. For instance, in Ghana's inshore exclusive zone, fishers participating in this study reported conflict with industrial and/or semi-industrial trawler vessels that led to the destruction of physical assets (canoes and fishing nets) and injuries to crew members. The local fishermen explained that losing fishing gear hampers their primary economic activity and source of income. In the coastal communities, the construction of a wooden canoe and the acquisition of an outboard motor and fishing nets represents a lifetime investment for local fishers. They acquire such equipment and gear

primarily through the sale of personal property or by taking out small loans. They explained that when such investments are damaged, the consequence on family livelihoods becomes 'hard'. Moreover, the way fishers conduct their fishing trips in Ghana has also changed due to the increased activities of industrial vessels. The duration of fishing, the distances travelled, and the frequency of fishing trips have all been disrupted. A local fisherman claimed:

We are no longer able to leave our net out at sea during the night or [to] fish, which is a common practice in Ghana. That's what we all do in our communities; it's the best technique for us, but we can't do it anymore because of these large vessels in our fishing zones (Fisherman, May 21, 2021)

The loss of access to and control over fisheries resources in Ghana has affected the incomes and livelihoods of these local fishers. Small-scale fisheries households that were economically secure are now poorer compared to the average household in Ghana's coastal regions (Ofori-Danson et al., 2013). Local fishers use their physical assets (fishing gear) to acquire economic assets (harvest fish); therefore, these dimensions are intertwined in terms of achieving or not achieving their livelihood goals. However, by disrupting their physical assets, the increase in industrial fishing exploitation has negatively affected these fishers' economic participation. The research participants also accused industrial fishing vessels of direct rivalry in fish marketing by using freezing technologies to preserve the freshness of small pelagic catch. One local processor told us:

They [small-scale fishers] waste so much fuel because they have to travel so far, and by the time they land, the little fish they harvested would have also gone bad, and we can't afford to pay a high price for bad fish (Fish processor/trader, July 29, 2021)

4.4.1.2 Fish trading and processing

Coastal women involved in the processing and selling of fish claimed they are in a precarious position due to declining fish landings along the coast, and that obtaining the required quantity of fish from local communities has become difficult and sometimes impossible. They now need to travel long distances to different community landing beaches to buy fish in small quantities. A processor said:

When we are unable to get fish from this beach, we must travel to other communities such as Edina and Fetteh to purchase fresh fish. As a result, the fish becomes more expensive, and selling it becomes a difficulty (Fish processor/traders, March 10, 2021)

Additional operational costs include transportation and ice. Unable to meet their increased operational costs associated with the declining fisheries, local fishers have increased catch prices disproportionately, which affects the profits of the processors/traders. The local women explained that apart from the difficulty in obtaining fresh fish, the marketing of processed fish has also become challenging because it has become more expensive for consumers due to the associated operational expenses and shortages.

Additionally, most of the fish traders explained that they can no longer store fish and thus maintain competitive prices due to the fishers' insistence on prompt payment. They mostly stockpile the smoked fish for better prices - sometimes up to a month - but due to the fisheries' decline, they are unable to store smoked fish for a lengthy period due to fishers' demands. As a result, processed fish are occasionally sold at lower prices. One fish trader said:

The fishermen bother us to get their money back within one or two days after giving you the fish. So, we are unable to keep the fish on the shelf for long. We have no choice but to sell it at whatever price is offered to us. When this happens, we are always at a loss (Fish processor/trader, May 26, 2021)

Furthermore, the local processors claimed the control of small-scale fishery markets has shifted away from them to a small group of financially well-resourced businesswomen who are mostly from the communities but do not belong to the small-scale fisheries local networks and who obtain illegally transhipped small pelagic fish species (*saiiko*) from industrial trawlers. These individuals also enjoy a consistent supply with little operational cost and frequently supply fish to markets at a discounted retail price. By maintaining the market monopoly over customers and distorting the prices of locally processed fish, such actors disadvantage the local processors, who are mostly local women facing large operating costs and a limited supply. A chief fish processor explained:

Businesswomen from the city with money have taken over our job because they call the shots at the shores and at the markets. When you go to the market, there is fish alright,

but about 95 percent of the fish in the market comes from the industrial trawler fishers (Chief fish processor/trader, February 15, 2021)

4.4.2 Social assets

4.4.2.1 Social exclusion and disconnection

The small-scale fisheries decline has impacted the organisation and interactions of Ghana's coastal fishing communities, both at the state level and within the local communities. Small-scale fisheries actors are being excluded from local fishing organisations at the community level due to livelihood disruption caused by the decline of local fisheries. Historically, the communities along the coast have been linked and organised through kinship and occupation (Bortei-Doku, 1995; Kronenfeld, 1980). Thus, local fishing community members demonstrate solidarity through these kinship networks and established social and economic groups. Fishing for small-scale commercial purposes and fish processing is one of the most socially organised economic activities in the coastal communities, with fishers and processors/traders supporting each other both financially and non-financially during celebratory social occasions. Boat owners and crew members share a close bond, living and working together as a family and finding personal fulfilment via fishing, while fishers gathering daily at the local landing beach strengthens the community cohesion. Women participants reported that when they gather on the shore to buy fish, they discuss their sexual and family lives. A female local processor recalled:

This area [the landing beach] serves as a gathering place for women; we came here to wait for the canoes and, while waiting, we discussed our families and women's issues (Chief fish processor/trader, January 30, 2021).

Another woman said:

That joyful period of our lives has passed; we no longer see one another daily (Fish processor/trader, April 23, 2021)

The participating local actors explained that these support structures have been affected by the declining incomes and other disruptions in fishing activities. They claimed small-scale fishermen are disengaging from coastal communities' shared goals and identities. A fisherman explained:

We fishermen were born into a loving and supportive community, but the current situation caused by the industrial trawlers has shifted that sense of community. We want and desire to assist each other, but the resources to provide that level of assistance are simply not available. The community thinks fishers have no place and reputation anymore (Fisherman, April 19, 2021)

These subjective social, well-being, and economic interactions considerations have been significantly disrupted in the Ghanaian coastal fisheries. Fishermen told us of emotional encounters with crew members who had to relocate to different towns due to low catches. Moreover, fishing community connections at local landing beaches, processing sites, or markets have all been weakened. A chief fisherman said:

We support one another, mend and drag each other's fishing nets while singing Indigenous rhythms; this served as a customary way of invoking the ancestral spirits of the sea and our fathers who lived and worked as fishers in this community (Chief fisherman, July 1, 2021)

Local fishermen told us that the state has failed to protect and prioritise their livelihoods at the broader state level, so they feel disconnected from the successive administrations. The relationship between government institutions (national and local) and Indigenous fishers over fisheries management, citizenship responsibilities, and governance has remained antagonistic because of the *saike* activities of the industrial fishers. Local fishers and local NGOs attribute the decline in small-scale fisheries to political decisions that have allowed industrial vessels into maritime space and to subsequent failures to manage illegal activities (EJF, 2018). During a focus group discussion with local fishermen, one participant summarised this concern:

As a community, we are united in our belief that the government has failed us. They have let us down. Governments' unpopular decisions over the years to expand industrial fishing have ruined our livelihoods. We do not appear to matter to the government; if we did, more would have been done to alleviate our plight. From artisanal fishermen to women processors, nothing about us is significant to the government (Fisherman, June 1, 2021)

4.4.2.2 Conflict and social cohesion.

Emerging evidence reveals a decline in social cohesion because of increased fisheries conflicts between small-scale fishers, between small-scale fishers and fishmongers, and between processors, traders and customers (Alexander et al., 2018; Ameyaw et al., 2021). In coastal Ghana, conventional norms that assign rights to cast nets and harvest fish based on first sighting are now flouted, and fishermen frequently disagree over who spotted the fish first. A fisher explained:

What happens is that when we notice a canoe throwing its net in a particular area of the sea, it indicates that they have spotted fish, so we also get close to cast our net ... in such situations, our nets overlap on each other and that can result in a heated argument and fight at sea (Fisherman, April 2, 2021)

Furthermore, as observed by Overå (2003), the prerequisite for the success of female entrepreneurs in Ghanaian coastal fisheries is a loyal and trustworthy male (fisherman) partner. However, the decline in small-scale fisheries has affected women's cooperation with local fishers. Women processors provide fuel for the fishing trip and, in some cases, help fishers repair their fishing gear. They also often become responsible for crewmembers' food, mainly using the profit from the sale of processed fish. In exchange, the fishers deliver the catch to these processors/traders. The processors explained that the decline in profits due to the limited supply and the associated operational cost has affected their ability to meet the expected expenditures for the fishing trips. As a result, most fishers have become disloyal and sell their catch to the highest bidder. Many fish processors do not have immediate cash reserves for payment and rely on the conventional fisher-processor arrangement, which is now dysfunctional. Besides, the catch price in the coastal communities is commonly determined by a committee of local fish processors (or chief fish processors), but fishers now disregard this convention as they look for the highest bidder. Moreover, the lack of catch frequently results in misunderstandings between fishers and the fish processors/traders who sponsor the fishing trips.

4.4.2.3 Heritage, traditions and norms

Fishing communities in Ghana are inextricably linked to broader socio-cultural beliefs, traditions, and taboos as a source of identity and social well-being (Bennett, 2002; Dosu, 2017).

The declining economic status of fishing discourages young adults from pursuing it as an occupation. Local fishers and processors/traders explained that their responsibility is to bequeath the fishing tradition by initiating young family members into adulthood with fishing gear and equipment to begin their working lives. For chief fishermen's families, this is particularly important as the elder male son must inherit the father's fishing occupation to retain the 'chief fisher' title in that family. A Chief fisherman reported:

When I ask my son to help me mend my fishing net, he refuses. He's not interested in learning about my work, let alone applying it ... it means he disapproves of my occupation. That's how badly we are losing our family heritage (Chief Fisherman, February 25, 2021)

Additionally, industrial fishers disregard local community norms by, for example, violating restrictions prohibiting fishing on designated non-fishing days (most commonly Tuesday) and during coastal festivities. Local festivals are celebrated at the end of the fishing season at the community level. During abundant catches, a portion of each daily catch is set aside for these seasonal and calendar celebrations. The fishermen explained that the decline in coastal fisheries and fishing livelihood has significantly impacted the local social activities that define their identity as fishers. One of them summarised the situation:

At the end of the fishing year, we saved money for drinks, food, clothes, and gifts for each crew member. We did so because we had a good catch and wanted to keep celebrating our fishing heritage. We felt a strong sense of community and joy, but all these memorable days are gone because of the China *saiko* fishers (Chief fisherman, May 19, 2021)

4.4.2.4 Women's identity and prestige - 'a good wife'

Gender concerns have not been adequately addressed in most studies of fishing livelihoods (Galappaththi et al., 2022; Harper et al., 2013; Harper et al., 2017; Torell et al., 2019). In Ghana, the economic position, identity, and social prestige of coastal women are linked to small-scale fisheries, which are important sources of income for them (Coastal Resources Center, 2018). Women exclusively control and make decisions regarding post-harvest management activities; they purchase the local catch, process it, and then market it (Ameyaw et al., 2020; Torell et al.,

2019). Generally, women in small-scale fisheries use their income to maintain their homes, and a portion of the fish is consumed by the household (Harper et al., 2013; Weeratunge et al., 2010).

According to the local women we spoke to, the processing and trading in small-scale fisheries have traditionally been female occupations, proudly passed down from generation to generation. However, the women claimed that in most communities, fishers now bypass them to sell the catch to former fishermen. Members of fishing crews who have lost their livelihoods because of declining fisheries have assumed the role of intermediaries between fishermen and women traders and processors. The women revealed that former crewmembers exploit both their relational advantage with the fishers and their ability to travel out to sea to obtain the fish. The women, who are primarily involved in either processing or marketing, are unable to meet fishers offshore to collect the catch. The leader of the processors explained:

One major concern for us here is that the fish selling and processing business was traditionally the preserve of women. But now the men have taken up this occupation ... the fishermen will sell the fish to men traders offshore, who will, in turn, sell it to buyers [women] on shore. The China people have caused all these problems, because the men would have gone fishing and we the women control the processing and trading (Chief fish processor/trader, January 28, 2021)

In this context, the women frequently blamed the Chinese investors in industrial fishing and their Ghanaian allies (politicians, fisheries managers, and businesspeople) for their livelihood predicaments.

The decline in small-scale fisheries has added to the burdens of coastal women. Processors and traders claimed that their social standing as 'good wives' has deteriorated due to their inability to access food from the fish business. Local fish traders/processors are culturally responsible for maintaining their homes and the crew members with the proceeds from their fish businesses. Based on their traditional role as fishers' wives, the women said they have lost their social status, as well as becoming impoverished. Bartering fish for other food supplies to meet the family's nutrition needs is no more common. One processor said:

Food was not bought with money; the women who brought foodstuffs from other communities to our market gave it out to us and in return, took fish ... things have gotten out of hand and I feel like am not a woman (Fish processor/trader, June 8, 2021)

4.4.3 Natural assets

4.4.3.1 Ecological damage and fishing capacity

Local knowledge helps small-scale fishers determine where to fish, how to fish, and what species to target. It constitutes their human capital. Local fishers reported that industrial fishing vessels either use technology to crush rocks or trawl the seabed to catch crustaceans, destroying specific ocean features and fauna and severely altering the marine ecosystem and landscape. This affects their ability to forecast changes in the fishing seasons and to predict coastal fishery behaviour - a traditional practice. A chief fisherman explained:

These vessel operators have machines that have broken all the rocks into pieces in order to catch octopus, shrimps and crabs. They have wiped out the sea's features which we use as signals to trace the fish or target the fish with the appropriate gear (Chief fisherman July 24, 2021)

Fishing around areas where dolphins and whales are observed, particularly on the western side of Axim and Half-Assini, is usually productive (Banful, 2021). However, such mammals are more difficult to find due to industrial trawlers' intensive harvesting of them (Van Waerebeek & Perrin, 2007). For example, the International Whaling Commission [IWC], 2021) and the International Union for Conservation of Nature [IUCN], 2010) classified Atlantic humpback dolphins and the West African manatees as vulnerable or critically endangered, due largely to their deaths as bycatch, targeted capture, habitat degradation, and prey depletion due to overfishing. Additionally, fishers participating in this study said that seasonal variations have become unpredictable due to industrial trawlers' destructive activities, which affect trip planning. One fisher explained:

Every fish has its seasonal time they come down. Herrings and salmon are in July, August, and September. Anchovies come every three months. Lobsters and octopus stay at one place in the sea ... all this has changed because of the trawler people (Fisherman April 5, 2021)

While small-scale fishers emphasise the role of industrial trawling, other anthropogenic factors such as climate change are also likely to exacerbate fishing decline and contribute to the livelihood vulnerability of communities in Ghana (Freduah et al., 2017; Pabi et al., 2015).

4.5 Conclusion

This study demonstrates that the modernisation of Ghana's historical fisheries (Overå, 2011) and the current blue economy aspirations of industrial fishing have considerably impacted coastal fishing livelihoods in that country. As innovation and globalisation accelerate marine transformation, research into coastal fishing livelihoods is becoming crucial to understanding their social, economic, and ecological effects. Blue economy initiatives, which have been compared to earlier maritime transitions are putting pressure on poorer coastal communities, particularly small-scale fisheries. In the context of Ghana, industrial fishing seems likely to intensify and overwhelm small-scale fishing in pursuit of the blue economy, with considerable economic and social consequences for coastal livelihoods. We found in Ghana that industrial fishing has already harmed fisheries resources, caused damage to gear, weakened the local market systems, and diminished the positions of coastal fishing actors (i.e., small-scale fishers and traders), thereby jeopardising the economic, social, and cultural formations associated with the country's coastal fishing value chains. With the multiple dimensions of coastal fisheries' livelihoods now eroding, the sustainability of the value chains is also at risk of collapse. The small-scale fisheries and the coastal communities in Ghana may be approaching a 'tipping point' (Serrao-Neumann et al., 2016) beyond which they cannot operate as they have in the past.

Fisheries scientists and environmental non-governmental organisations are optimistic that recent progress by the World Trade Organisation (WTO) at its 12th Ministerial Conference to address the issue of 'harmful' fisheries subsidies on a global scale will help to reduce the phenomena (WTO, 2022). While these international actions are underway to address the effects of fisheries subsidies, their success may eventually have beneficial spillover effects at the local level for small-scale fisheries. In the case of Ghana at the moment, we recommend that the government of Ghana take immediate steps to reduce the number and capacity of industrial fishing vessels to enable local small-scale fisheries to rebuild. The Ghana Fisheries Management Plan (2015 - 2019) made a similar proposal to cut all fleet sizes to reduce overcapacity in the country's coastal waters (MoFAD, 2015). However, the management plan expired in 2019 without any tangible

actions and the political will to implement the proposal. Establishing a closed fishing season for both the industrial fishing fleet and small-scale fishing in Ghana during the past few years is a big step towards allowing adult fish to spawn and increasing their production. Nonetheless, this management decision has severely impacted coastal fishing actors who have no other source of income or investments to rely on during the restricted fishing season. Additionally, we recommend that the recently established Fishery Enforcement Unit (FEU) strictly enforce the country's law on fisheries' spatial limits. Moreover, donor-funded initiatives to implement participatory and co-management in Ghana's fisheries and to build marine protected areas (Kassah & Asare, 2022) must provide an equitable and inclusive space for small-scale fishing as a matter of social and economic rights (Bennett et al., 2019; Jentoft et al., 2022). As a form of adaptation, future research may examine the social and political agency available to small-scale operators in Ghana.

4.5.1 Ethics Declarations

The Human Research Ethics Committee of University of Technology Sydney gave ethical approval for this study. Fieldwork procedures followed the required ethical guidelines, and all participants provided informed consent.

4.5.2 CRediT

The first author conceptualised the research, obtained ethical approval, and wrote the first draft. The second and third authors supervised the research and contributed to analysis. The first and fourth authors conducted the fieldwork and managed data.

4.5.3 Competing interest

The authors declare no competing interests.

4.5.4 Data availability statement

Due to the research participants' confidentiality and privacy concerns, the datasets collected for this research may not be made publicly available except in limited circumstances.

4.5.5 Funding

This research is supported by an Australian Government Research Training Program Scholarship as part of the first author's PhD, and by the Australian Research Council (DP180100965).

References

- Acquay, H. K. (1992). Implications of structural adjustment for Ghana's marine fisheries policy. *Fisheries Research*, 14(1), 59-70. [https://doi.org/10.1016/0165-7836\(92\)90073-3](https://doi.org/10.1016/0165-7836(92)90073-3)
- Adger, W. N. (2006). Vulnerability. *Global Environmental Change*, 16(3), 268-281. <https://doi.org/10.1016/j.gloenvcha.2006.02.006>
- Adjei, M., & Overå, R. (2019). Opposing discourses on the offshore coexistence of the petroleum industry and small-scale fisheries in Ghana. *The Extractive Industries and Society*, 6(1), 190-197. <https://doi.org/10.1016/j.exis.2018.09.006>
- Africa Union (2019). African Blue Economy Strategy. Nairobi, Kenya: https://www.au-ibar.org/sites/default/files/2020-10/sd_20200313_africa_blue_economy_strategy_en.pdf
- Akpalu, W., & Eggert, H. (2021). The economic, social and ecological performance of the industrial trawl fishery in Ghana: Application of the FPIs. *Marine Policy*, 125, 104241. <https://doi.org/10.1016/j.marpol.2020.104241>
- Akyeampong, E. (2007). Indigenous knowledge and maritime fishing in West Africa: the case of Ghana. *Tribes and Tribals*, 1, 173-182.
- Alexander, S. M., Bodin, Ö., & Barnes, M. L. (2018). Untangling the drivers of community cohesion in small-scale fisheries. *International Journal of the Commons*, 12(1), 519–547. <http://doi.org/10.18352/ijc.843>
- Allison, E. H., & Ellis, F. (2001). The livelihoods approach and management of small-scale fisheries. *Marine Policy*, 25(5), 377-388. [https://doi.org/10.1016/S0308-597X\(01\)00023-9](https://doi.org/10.1016/S0308-597X(01)00023-9)
- Allison, E. H., & Horemans, B. (2006). Putting the principles of the sustainable livelihoods approach into fisheries development policy and practice. *Marine Policy*, 30(6), 757-766. <https://doi.org/10.1016/j.marpol.2006.02.001>
- Ameyaw, A. B., Breckwoldt, A., Reuter, H., & Aheto, D. W. (2020). From fish to cash: Analysing the role of women in fisheries in the western region of Ghana. *Marine Policy*, 113, 103790. <https://doi.org/10.1016/j.marpol.2019.103790>
- Ameyaw, G. A., Tsamenyi, M., McIlgorm, A., & Aheto, D. W. (2021). Challenges in the management of small-scale marine fisheries conflicts in Ghana. *Ocean and Coastal Management*, 211, 105791. <https://doi.org/10.1016/j.ocecoaman.2021.105791>
- Atta-Mills, J., Alder, J., & Sumaila, U. R. (2004). The decline of a regional fishing nation: The case of Ghana and West Africa. *Natural Resources Forum*, 28(1), 13-21. <https://doi.org/10.1111/j.0165-0203.2004.00068.x>
- Ayilu, R.K., Antwi-Asare, T.O., Anoh, P., Tall, A., Aboya, N., Chimatiro, S., & Dedi, S. (2016). Informal artisanal fish trade in West Africa: Improving cross-border trade. Penang, Malaysia: WorldFish. Program Brief: 2016-37. <https://hdl.handle.net/20.500.12348/3864>
- Ayilu, R. K., Fabinyi, M., & Barclay, K. (2022). Small-scale fisheries in the blue economy: Review of scholarly papers and multilateral documents. *Ocean and*

- Coastal Management*, 216, 105982.
<https://doi.org/10.1016/j.ocecoaman.2021.105982>
- Banful, K. (2021, April 6). Nobody Likes Dolphin Meat, but Times Are Hard. *Los Angeles Review of Book*. <https://lareviewofbooks.org/article/nobody-likes-dolphin-meat-but-times-are-hard/>
- Bank of Ghana. (2008). The Fishing Sub-Sector and Ghana's Economy. Retrieved from https://www.bog.gov.gh/wp-content/uploads/2019/07/fisheries_completerpdf.pdf
- Bavinck, M. (2005). Understanding fisheries conflicts in the South -a legal pluralist perspective. *Society and Natural Resources*, 18(9), 805-820.
<https://doi.org/10.1080/08941920500205491>
- Belhabib, D., Cheung, W. W. L., Kroodsma, D., Lam, V. W. Y., Underwood, P. J., & Viridin, J. (2020). Catching industrial fishing incursions into inshore waters of Africa from space. *Fish and Fisheries*, 21(2), 379-392. <https://doi.org/10.1111/faf.12436>
- Belhabib, D., Sumaila, U. R., Lam, V. W., Zeller, D., Le Billon, P., Abou Kane, E., & Pauly, D. (2015). Euros vs. Yuan: comparing European and Chinese fishing access in West Africa. *PLoS ONE*, 10(3). <https://doi.org/10.1371/journal.pone.0118351>
- Bennett, E. (2002). The challenges of managing small-scale fisheries in West Africa. *CEMARE Report*, 7334, 61.
- Bennett, E., & Bannerman, P. (2002). The Management of Conflict in Tropical Fisheries. *CEMARE Final Technical Report*, 7334.
- Bennett, N. J., Cisneros-Montemayor, A. M., Blythe, J., Silver, J. J., Singh, G., Andrews, N. ... & Sumaila, U. R. (2019). Towards a sustainable and equitable blue economy. *Nature Sustainability*, 2(11), 991-993.
<https://doi.org/10.1038/s41893-019-0404-1>
- Bennett, N. J., & Dearden, P. (2014). Why local people do not support conservation: Community perceptions of marine protected area livelihood impacts, governance and management in Thailand. *Marine Policy*, 44, 107-116.
<https://doi.org/10.1016/j.marpol.2013.08.017>
- Berkes, F., Hughes, T. P., Steneck, R. S., Wilson, J. A., Bellwood, D. R., Crona, B. ... & Worm, B. (2006). Globalisation, roving bandits, and marine resources. *Science*, 311(5767), 1557-1558. DOI: 10.1126/science.1122804
- Bolaky, B. (2020). Operationalising Blue Economy in Africa: The Case of South West Indian Ocean, *ORF Issue Brief No. 398*, September 2020, Observer Research Foundation.
- Bortei-Doku, E. (1991). Migrations in Artisanal Marine Fisheries Among Ga-Adangbe Fishermen and Women in Ghana, in Haanonsen, I. M. and Diaw, C. M. (eds.) *Fishermen's Migration in West Africa*. Cotonou: IDAF.
- Bortei-Doku, E. (1995). Kinsfolk and workers: Social aspects of labour relations among Ga-Dangme Coastal fisherfolk. *ORSTROM*, 134-151.
<https://hdl.handle.net/10535/5780>

- Bryant, R. L. (1992). Political ecology: an emerging research agenda in Third-World studies. *Political Geography*, 11(1), 12-36. [https://doi.org/10.1016/0962-6298\(92\)90017-N](https://doi.org/10.1016/0962-6298(92)90017-N)
- Campling, L., & Colás, A. (2021). *Capitalism and the Sea: The Maritime Factor in the Making of the Modern World*. London Verso Books.
- Chambers, R. and Conway, G. (1992). *Sustainable Rural Livelihoods: Practical Concepts for the 21st Century*, IDS Discussion Paper 296, Brighton: IDS
- Childs, J. R., & Hicks, C. (2019). Securing the blue: political ecologies of the blue economy in Africa. *Journal of Political Ecology*, 26(1), 323-340. <https://doi.org/10.2458/v26i1.23162>
- Coastal Resources Center. (2018). *Fisheries and Food Security: A briefing from the USAID/Ghana Sustainable Fisheries Management Project, January 2018. The USAID/Ghana Sustainable Fisheries Management Project (SFMP). Narragansett, RI: Coastal Resources Center, Graduate School of Oceanography, University of Rhode Island. GH2014_POL055_CRC 15 pp. REPORT ON ANALYSIS OF NON-TRADITIONAL Exports*
- Cohen, P. J., Allison, E. H., Andrew, N. L., Cinner, J., Evans, L. S., Fabinyi, M., ... & Ratner, B. D. (2019). Securing a just space for small-scale fisheries in the blue economy. *Frontiers in Marine Science*, 6, 171. <https://doi.org/10.3389/fmars.2019.00171>
- De Haan, L., & Zoomers, A. (2005). Exploring the frontier of livelihoods research. *Development and Change*, 36(1), 27-47. <https://doi.org/10.1111/j.0012-155X.2005.00401.x>
- DfID (1999). *Sustainable livelihoods guidance sheets*. Department for International Development (DFID), London, UK.
- Dosu, G. (2017). *Perceptions of socio-cultural beliefs and taboos among the Ghanaian fishers and fisheries authorities. A case study of the Jamestown fishing community in the Greater Accra Region of Ghana (Master's thesis, The Arctic University of Norway)*
- Dovlo, E., Amador, K., & Nkrumah, B. (2016). *Report on the 2016 Ghana Marine Canoe Frame Survey*. Ministry of Fisheries and Aquaculture Development, Fisheries Scientific Survey Division, Information Report No 36.
- Economic Commission for Africa (2016). *Africa's Blue Economy: A policy handbook*. Economic Commission for Africa, Retrieved from <https://www.uneca.org/publications/africas-blue-economy-policy-handbook>.
- Environmental Justice Foundation (2018). *China's hidden fleet in West Africa: a spotlight on illegal practices within Ghana's industrial trawl sector*. Environmental Justice Foundation, London, UK. <https://ejfoundation.org/reports/chinas-hidden-fleet-in-west-africa-a-spotlight-on-illegal-practices-within-ghanas-industrial-trawl-sector>.
- Eriksson, H., Österblom, H., Crona, B., Troell, M., Andrew, N., Wilen, J., & Folke, C. (2015). Contagious exploitation of marine resources. *Frontiers in Ecology and the Environment*, 13(8), 435-440. <https://doi.org/10.1890/140312>.

- European Investment Bank (2021, October 13). African and European Blue Economy leaders share sustainable investment best practices. <https://www.eib.org/en/press/all/2021-124-african-and-european-blue-economy-leaders-share-sustainable-investment-best-practices>.
- Failler, P., & Binet, T. (2011). A critical review of the European Union West African fisheries agreements. *Oceans the new frontier. AFD, IDDRI, TERI*, 166-170.
- Feeny, D., Hanna, S., & McEvoy, A. F. (1996). Questioning the assumptions of the 'tragedy of the commons' model of fisheries. *Land Economics*, 187-205. <https://doi.org/10.2307/3146965>
- Ferrol-Schulte, D., Wolff, M., Ferse, S., & Glaser, M. (2013). Sustainable Livelihoods Approach in tropical coastal and marine social–ecological systems: A review. *Marine Policy*, 42, 253-258. <https://doi.org/10.1016/j.marpol.2013.03.007>
- Ficke, A. D., Myrick, C. A., & Hansen, L. J. (2007). Potential impacts of global climate change on freshwater fisheries. *Reviews in Fish Biology and Fisheries*, 17(4), 581-613. <https://doi.org/10.1007/s11160-007-9059-5>
- Freduah, G., Fidelman, P., & Smith, T. F. (2017). The impacts of environmental and socio-economic stressors on small scale fisheries and livelihoods of fishers in Ghana. *Applied Geography*, 89, 1-11. <https://doi.org/10.1016/j.apgeog.2017.09.009>
- Freduah, G., Fidelman, P., & Smith, T. F. (2018). Mobilising adaptive capacity to multiple stressors: insights from small-scale coastal fisheries in the Western Region of Ghana. *Geoforum*, 91, 61-72. <https://doi.org/10.1016/j.geoforum.2018.02.026>
- Friends of the Nation (2015). Baseline for Prosecutions: Summary of Fisheries Arrests and Prosecution in the Western and Eastern Commands. Narragansett, RI: Coastal Resources Center, Graduate School of Oceanography, University of Rhode Island and Friends of the Nation. GH2014_POL013_FoN. 30 pp.
- Galappaththi, M., Armitage, D., & Collins, A. M. (2022). Women's experiences in influencing and shaping small-scale fisheries governance. *Fish and Fisheries*, 23(5), 1099-1120.
- Ghana Health Service (2021, June 29). Covid-19: Ghana's Outbreak Response Management Updates. Retrieved from <https://www.ghanahealthservice.org/covid19/>
- Ghana Statistical Service (2010). Population and Housing Census Report. <https://statsghana.gov.gh>
- Hardin, G. (1998). Extensions of 'the tragedy of the commons'. *Science*, 280(5364), 682-683. DOI: 10.1126/science.280.5364.682
- Harper, S., Grubb, C., Stiles, M., & Sumaila, U. R. (2017). Contributions by women to fisheries economies: insights from five maritime countries. *Coastal Management*, 45(2), 91-106. <https://doi.org/10.1080/08920753.2017.1278143>
- Harper, S., Zeller, D., Hauzer, M., Pauly, D., & Sumaila, U. R. (2013). Women and fisheries: Contribution to food security and local economies. *Marine Policy*, 39, 56-63. <https://doi.org/10.1016/j.marpol.2012.10.018>

- Havice, E., & Campling, L. (2021). Industrial fisheries and oceanic accumulation. In *Handbook of Critical Agrarian Studies*. Edward Elgar Publishing. <https://doi.org/10.4337/9781788972468.00053>
- IHH (2021, January 9). A virtual webinar providing a 'first-look' at some key findings from the upcoming Illuminating Hidden Harvest (IHH) report. <https://www.youtube.com/watch?v=2dheBvXcABE>
- Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES). (2022). Thematic Assessment of the Sustainable Use of Wild Species of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. Zenodo. <https://doi.org/10.5281/ZENODO.6448567>.
- International Union for Conservation of Nature [IUCN] (2021, October 23). IUCN Red List of Threatened Species. Version 2010.3. <http://www.iucnredlist.org>.
- International Whaling Commission [IWC] (2021, October 23). Humpback Dolphins. <https://iwc.int/humpback-dolphin>.
- Jentoft, Chuenpagdee, R., Bugeja Said, A., & Isaacs, M. (2022). Blue Justice: Small-Scale Fisheries in a Sustainable Ocean Economy. MARE Publication Series. Springer.
- Jonsen, K., & Jehn, K. A. (2009). Using triangulation to validate themes in qualitative studies. *Qualitative Research in Organizations and Management*, 4(2), 123–150. <https://doi.org/10.1108/17465640910978391>
- Kassah, J. E., & Asare, C. (2022). Conflicts in the Artisanal Fishing Industry of Ghana: Reactions of Fishers to Regulatory Measures. In *Blue Justice* (pp. 99-118). Springer, Cham.
- Kolding, J., & van Zwieten, P. A. (2011). The tragedy of our legacy: how do global management discourses affect small scale fisheries in the south? In *Forum for Development Studies* (Vol. 38, No. 3, pp. 267-297). Routledge. <https://doi.org/10.1080/08039410.2011.577798>
- Kronenfeld, D. (1980). A Formal Analysis of Fanti Kinship Terminology (Ghana). *Anthropos*, 75(3/4), 586-608. <http://www.jstor.org/stable/40460202>
- Kuczenski, B., Vargas Poulsen, C., Gilman, E. L., Musyl, M., Geyer, R., & Wilson, J. (2022). Plastic gear loss estimates from remote observation of industrial fishing activity. *Fish and Fisheries*, 23(1), 22-33. <https://doi.org/10.1111/faf.12596>
- Lazar, N., Yankson, K., Blay, J., Ofori-Danson, P., Markwei, P., Agbogah, K., Bannerman, P., Sotor, M., Yamoah, K. K., Bilisini, W. B. (2018). Status of the small pelagic stocks in Ghana in 2018. Scientific and Technical Working Group. USAID/Ghana Sustainable Fisheries Management Project (SFMP). Coastal Resources Center, Graduate School of Oceanography, University of Rhode Island. GH2014_SCI_082_CRC. 16 pp.
- Longo, S. B., & Clausen, R. (2011). The tragedy of the commodity: The overexploitation of the Mediterranean bluefin tuna fishery. *Organization & Environment*, 24(3), 312-328. <https://doi.org/10.1177/1086026611419860>

- Mallory, T. G. (2016). Fisheries subsidies in China: Quantitative and qualitative assessment of policy coherence and effectiveness. *Marine Policy*, 68, 74-82. <https://doi.org/10.1016/j.marpol.2016.01.028>
- Mansfield, B. (2010). Modern industrial fisheries and the crisis of overfishing. In *Global Political Ecology* (pp. 98-113): Routledge. <https://doi.org/10.4324/9780203842249>.
- Marshall, C., & Rossman, G. B. (2014). *Designing Qualitative Research*: Sage publications.
- Martins, I. M., Medeiros, R. P., Di Domenico, M., & Hanazaki, N. (2018). What fishers' local ecological knowledge can reveal about the changes in exploited fish catches. *Fisheries Research*, 198, 109-116. <https://doi.org/10.1016/j.fishres.2017.10.008>.
- McConnaughey, R. A., Hiddink, J. G., Jennings, S., Pitcher, C. R., Kaiser, M. J., Suuronen, P.,... & Hilborn, R. (2020). Choosing best practices for managing impacts of trawl fishing on seabed habitats and biota. *Fish and Fisheries*, 21(2), 319-337. <https://doi.org/10.1111/faf.12431>
- McDougall, C., Akester, M., Notere Boso, D., Choudhury, A., Hasiba, Z., Karisa, H. . . . Scott, J. (2020). Ten strategies for research quality in distance research during COVID-19 and future food system shocks. *Penang, Malaysia: CGIAR Research Program on Fish Agri-Food Systems. Program Brief: FISH-2020-11*.
- McWhinnie, S. F. (2009). The tragedy of the commons in international fisheries: An empirical examination. *Journal of Environmental Economics and Management*, 57(3), 321-333. <https://doi.org/10.1016/j.jeem.2008.07.008>
- Mindjimba, K., Rosenthal, I., Diei-Ouadi, Y., Bomfeh, K. & Randrianantoandro, A. (2019). FAO-Thiaroye processing technique: towards adopting improved fish smoking systems in the context of benefits, trade-offs and policy implications from selected developing countries. FAO Fisheries and Aquaculture Paper no. 634. Rome. FAO. 160 pp.
- Ministry of Fisheries and Aquaculture Development [MoFAD] (2015). National Fisheries Management Plan, Government of Ghana pp 48
- Nolan, C. (2019). Power and access issues in Ghana's coastal fisheries: A political ecology of a closing commodity frontier. *Marine Policy*, 108, 103621. <https://doi.org/10.1016/j.marpol.2019.103621>
- Nunoo, F., Boateng, J. O., Ahulu, A. M., Agyekum, K. A., & Sumaila, U. R. (2009). When trash fish is treasure: the case of Ghana in West Africa. *Fisheries Research*, 96(2-3), 167-172. <https://doi.org/10.1016/j.fishres.2008.10.010>
- Nunoo, F. K. E., Asiedu, B., Amador, K., Belhabib, D., Lam, V., Sumaila, R., & Pauly, D. (2014). Marine fisheries catches in Ghana: Historic reconstruction for 1950 to 2010 and current economic impacts. *Reviews in Fisheries Science and Aquaculture*, 22(4), 274-283. <https://doi.org/10.1080/23308249.2014.962687>
- Ofori-Danson, P. K., Sarpong, D. B., Sumaila, U. R., Nunoo, F., & Asiedu, B. (2013). Poverty measurements in small-scale fisheries of Ghana: A step towards poverty eradication. *Journal: Current Research Journal of Social Sciences*, 5(3), 75-90. <http://hdl.handle.net/10535/9030>

- Okafor-Yarwood, I., & Belhabib, D. (2020). The duplicity of the European Union Common Fisheries Policy in third countries: Evidence from the Gulf of Guinea. *Ocean & Coastal Management*, 184, 104953. <https://doi.org/10.1016/j.ocecoaman.2019.104953>
- Okeke-Ogbuafor, N., Gray, T., & Stead, S. M. (2020). Is there a 'wicked problem' of small-scale coastal fisheries in Sierra Leone? *Marine Policy*, 118. <https://doi.org/10.1016/j.marpol.2019.02.043>
- O'Neill, E. D., & Crona, B. (2017). Assistance networks in seafood trade—A means to assess benefit distribution in small-scale fisheries. *Marine Policy*, 78, 196-205. <https://doi.org/10.1016/j.marpol.2017.01.025>
- Overå, R. (2003). Gender ideology and manoeuvring space for female fisheries entrepreneurs. *Institute of African Studies Research Review*, 19(2), 49-62. <https://hdl.handle.net/10520/EJC45946>
- Overå, R. (2005). Institutions, mobility and resilience in the Fante migratory fisheries in West Africa. *Transactions of the Historical Society of Ghana* (9), 103-123. <https://www.jstor.org/stable/41406726>
- Overå, R. (2011). Modernisation narratives and small-scale fisheries in Ghana and Zambia. *Forum for Development Studies*, 38(3), 321-343. <https://doi.org/10.1080/08039410.2011.596569>
- Owusu, V., & Andriese, E. (2020). From open access regime to closed fishing season: Lessons from small-scale coastal fisheries in the Western Region of Ghana. *Marine Policy*, 121, 104162. <https://doi.org/10.1016/j.marpol.2020.104162>
- Pabi, O., Codjoe, S. N. A., Sah, N. A., & Appeaning Addo, I. (2015). Climate change linked to failing fisheries in coastal Ghana. IDRC. <http://hdl.handle.net/10625/54163>
- Parker, R. W., Blanchard, J. L., Gardner, C., Green, B. S., Hartmann, K., Tyedmers, P. H., & Watson, R. A. (2018). Fuel use and greenhouse gas emissions of world fisheries. *Nature Climate Change*, 8(4), 333-337. <https://doi.org/10.1038/s41558-018-0117-x>
- Parker, R. W., & Tyedmers, P. H. (2015). Fuel consumption of global fishing fleets: current understanding and knowledge gaps. *Fish and Fisheries*, 16(4), 684-696. <https://doi.org/10.1111/faf.12087>
- Pauly, D., Watson, R., & Alder, J. (2005). Global trends in world fisheries: impacts on marine ecosystems and food security. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 360(1453), 5-12.
- Pauly, D., Zeller, D. (Eds.), (2015). *Catch Reconstruction: Concepts, Methods and Data Sources*. Online Publication. Sea Around Us. University of British Columbia. www.seaaroundus.org
- Robbins, P. (2011). *Political Ecology: A critical introduction* (Vol. 16): John Wiley & Sons.
- Sala, A., Damalas, D., Labanchi, L., Martinsohn, J., Moro, F., Sabatella, R., & Notti, E. (2022). Energy audit and carbon footprint in trawl fisheries. *Scientific Data*, 9(1), 1-20. <https://doi.org/10.1038/s41597-022-01478-0>

- Schorr, D. K. (2005). Artisanal Fishing: Promoting Poverty Reduction and Community Development Through New WTO Rules on Fisheries Subsidies-An Issue and Options Paper. *The United Nations Environment Programme (UNEP), Economics and Trade Branch (ETB) Geneva.*
- Schuhbauer, A., Skerritt, D.J., Ebrahim, N., Le Manach, F., & Sumaila, U.R. (2020). The Global Fisheries Subsidies Divide Between Small- and Large-Scale Fisheries. *Frontiers Marine in Science*. 7:539214. doi:10.3389/fmars.2020.539214
- Scoones, I. (1998). Sustainable Rural Livelihoods: A Framework for Analysis, IDS Working Paper 72, Brighton: IDS.
- Scoones, I. (2015). Sustainable livelihoods and rural development. Blackpoint, Nova Scotia, Fernwood Pub.
- Sen, A. (1981). Poverty and Famines: an Essay on Entitlement and Deprivation, Oxford: Oxford University Press
- Serrao-Neumann, S., Davidson, J. L., Baldwin, C. L., Dedekorkut-Howes, A., Ellison, J. C., Holbrook, N. J., . . . Morgan, E. A. (2016). Marine governance to avoid tipping points: Can we adapt the adaptability envelope? *Marine Policy*, 65, 56-67. <https://doi.org/10.1016/j.marpol.2015.12.007>
- Seto, K. L. (2017). Local fishery, global commodity: Conflict, cooperation, and competition in Ghana's coastal fisheries (Doctoral dissertation, UC Berkeley).
- Seyram, D. E. (2020). Factors Influencing the Use of 'Ahotor' Oven Among Fish Smokers in Ghana (Doctoral dissertation, University of Ghana).
- Silver, J. J., Gray, N. J., Campbell, L. M., Fairbanks, L. W., & Gruby, R. L. (2015). Blue economy and competing discourses in international oceans governance. *The Journal of Environment & Development*, 24(2), 135-160. <https://doi.org/10.1177/1070496515580797>
- Smith-Godfrey, S. (2016). Defining the blue economy. *Maritime Affairs: Journal of the National Maritime Foundation of India*, 12(1), 58-64. <https://doi.org/10.1080/09733159.2016.1175131>
- Sumaila, U. R., Cheung, W. W., Lam, V. W., Pauly, D., & Herrick, S. (2011). Climate change impacts on the biophysics and economics of world fisheries. *Nature Climate Change*, 1(9), 449-456. <https://doi.org/10.1038/nclimate1301>
- Sumaila, U. R., Ebrahim, N., Schuhbauer, A., Skerritt, D., Li, Y., Kim, H. S.,... & Pauly, D. (2019). Updated estimates and analysis of global fisheries subsidies. *Marine Policy*, 109, 103695. <https://doi.org/10.1016/j.marpol.2019.103695>
- Sumaila, U. R., Lam, V., Le Manach, F., Swartz, W., & Pauly, D. (2016). Global fisheries subsidies: An updated estimate. *Marine Policy*, 69, 189-193. <https://doi.org/10.1016/j.marpol.2015.12.026>
- Teh, L. C., & Sumaila, U. R. (2013). Contribution of marine fisheries to worldwide employment. *Fish and Fisheries*, 14(1), 77-88. <https://doi.org/10.1111/j.1467-2979.2011.00450.x>

- Torell, E., Bilecki, D., Owusu, A., Crawford, B., Beran, K., & Kent, K. (2019). Assessing the Impacts of Gender Integration in Ghana's Fisheries Sector. *Coastal Management*, 47(6), 507-526. <https://doi.org/10.1080/08920753.2019.1669098>
- Van Waerebeek, K., & Perrin, W. F. (2007). Conservation status of the Clymene dolphin in West Africa. In *Document CMS/ScC14/Doc. 5 presented to 14th Meeting of the CMS Scientific Council*.
- Walker, B. L. E. (2001). Sisterhood and seine-nets: Engendering development and conservation in Ghana's marine fishery. *The Professional Geographer*, 53(2), 160-177. DOI: 10.1111/0033-0124.00277
- Wang, Q., & Wang, S. (2022). Carbon emission and economic output of China's marine fishery—a decoupling efforts analysis. *Marine Policy*, 135, 104831. <https://doi.org/10.1016/j.marpol.2021.104831>
- Weeratunge, N., Snyder, K. A., & Sze, C. P. (2010). Gleaner, fisher, trader, processor: understanding gendered employment in fisheries and aquaculture. *Fish and Fisheries*, 11(4), 405-420. <https://doi.org/10.1111/j.1467-2979.2010.00368.x>
- World Trade Organisation [WTO] (2022, August 23). Agreement on Fisheries Subsidies. Retrieved from <https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/WT/MIN22/33.pdf&Open=True>.

Chapter 5

Limits to Blue Economy: Challenges to Accessing Fishing Livelihoods in Ghana's Port Communities

Abstract

The blue economy concept has drawn global attention to the maritime economy, recognising expanding maritime industries such as shipping as crucial drivers of economic growth. In recent decades, seaports have correspondingly witnessed significant expansion, allowing them to play a substantial role in achieving blue growth. This study examines the challenges faced by small-scale fishing actors in gaining access to fishing livelihoods in coastal fishing communities close to Ghanaian ports. Drawing on political ecology, the study demonstrates how securitisation in port areas and dispossession has resulted in unstable fishing livelihoods in port communities. The study shows that the growth-oriented goals of port expansions and port security measures have restricted fishing communities' access to coastal fishing spaces and caused congestion in the canoe bays of Ghana's fishing harbours. In addition, the urbanisation around the ports has impacted fishers' ability to meet the rising cost of living in fishing communities with fishing incomes. Further, the study discusses how the new Jamestown fishing harbour complex project has displaced small-scale fishing actors and become a site of contestation between a coastal fishing community and local government authorities. In conclusion, as coastal fishing actors lose their only source of livelihood, resistance may escalate into different forms of maritime conflicts in the blue economy. The study recommends addressing the marginalisation and exclusion of traditional coastal fishing livelihoods to ensure a more equitable blue economy.

Keywords: Blue Growth; Small-Scale Fishing; Coastal Development; Political Ecology; Displacement; Securitisation

5.1 Introduction

The maritime economy is rapidly expanding, with much attention recently paid to traditional and emerging maritime industries through blue economy initiatives (Jentoft et al., 2022). The notion of blue growth recognises maritime economic activities as crucial drivers for maximising economic growth and employment and constitutes a strategy to ensure the long-term environmental sustainability of marine sectors (Abhinav et al., 2020; Burgess et al., 2018; Eikeset et al., 2018). The European Union (EU), for instance, proposed blue growth as a strategy to steer the EU out of the global financial crisis of 2008 by opening Europe's oceans, seas, and coastal areas for job creation and economic growth (European Commission, 2012). In recent decades, seaport developments have been associated with the blue economy (Seiseddos & Carrasco, 2020; Tsakiridis et al., 2021), with ports witnessing significant growth, enabling them to play a more prominent role in achieving blue growth (Stanković et al., 2021).

Globally, studies have shown that the blue economy developments, such as ports, maritime zone, aquaculture, industrial parks, and eco-tourism, could potentially displace traditional fishing livelihoods and small-scale local operators (Ayilu et al., 2022; Cohen et al., 2019; Fabinyi et al., 2022; Okafor-Yarwood et al., 2020). In Ghana, small-scale fisheries research has focused on important traditional challenges around how the decline in fish stocks is linked to overexploitation, illegal fishing activities, and the activities of industrial trawlers as well as how climate change directly impacts small-scale fishing activities (Afoakwah et al., 2018; Ankrah, 2018; Atta-Mills et al., 2004; Freduah et al., 2017). This literature has made significant contributions to the field of small-scale fisheries by analysing coastal livelihoods, food security, and poverty in relation to the use and governance of marine resources and the wellbeing of fishing actors. However, the literature has provided few explanations for the blue economy's multifaceted coastal shifts affecting urban small-scale fishing in port communities discussed in this study. In these rapidly transforming fishing communities, small-scale fishing livelihoods are entangled in complex political-economic factors relating to access and control over coastal and ocean spaces, not just declining fisheries, for which Kadfak and Oskarsson (2020) have called for theoretical consideration. While some studies in Ghana have examined the impact of emerging blue economy growth-oriented expansion on coastal fishing communities, such as oil exploration (Ackah-Baidoo, 2013; Adjei & Overå, 2019; Adusah-Karikari, 2015; Owusu, 2019; Siakwah, 2018), port development, expansions, and operations remain to be addressed (Kalina et al., 2019; Okafor-Yarwood et al., 2020).

Recent port developments and expansions in Ghana aim to modernise and unlock the country's economic growth opportunities through maritime trade (Ghana Ports and Harbours Authority [GPHA], 2022). In line with these visions, the government has adopted neoliberal port strategies to achieve this ambitious economic development plan, including increased private sector participation and adopting international regulations and standards to improve port operational efficiency and increase trade competitiveness (GPHA, 2022). For instance, private sector investments are spearheading a USD 1.5 billion expansion of the Port of Tema and a USD 475 million expansion of the Port of Takoradi (GPHA, 2022).

Large-scale ports are multi-dimensional coastal landscapes that have lasting economic and developmental impacts on regional economies, playing a central role in providing direct and indirect employment (Alamouh et al., 2021; Olukoju, 2020). In the recent COVID-19 pandemic, ports were prominent in the global supply chain, facilitating the delivery of medicine, raw materials, food products, and energy. However, ports have also had significant negative social and environmental implications. For instance, land (re)claiming for port developments and expansion, dredging and disposal, vessel traffic and land transport activities, cargo handling, and industrial and semi-industrial operations leave significant social and environmental footprints (Alamouh et al., 2021; Bailey & Solomon, 2004). Moreover, there are social and political contestations over land appropriation, coastline privatisation, and exclusion and displacement of poor coastal populations (Fabinyi et al., 2022; Kadfak & Oskarsson, 2020; Kalina et al., 2019).

By employing political ecology notions of accumulation by securitisation and dispossession (Harvey, 2003; Massé & Lunstrum, 2016), this paper examines the impact of port development, expansions, and operations on adjacent fishing communities in Ghana. The study draws on a case study of fishing communities nearby Ghana's main ports to understand the challenges facing small-scale fishing livelihoods in the context of port developments. It contributes to the emerging blue justice literature contesting the impacts of the blue economy (Jentoft et al., 2022) by arguing that recent maritime port developments and transformations in Ghana reflect growth-oriented expansions that exclude Indigenous coastal fishing livelihoods. The study employed a qualitative research approach using interviews with local fishing actors in port communities and with a port manager to understand how these urbanised coastal community transitions affect fishing livelihoods.

5.2 Accumulation by securitisation and dispossession

The blue economy upsurge has turned global attention from terrestrial-based to ocean-based resources for economic and industrial purposes, with such efforts influenced by market and growth-oriented tendencies that undermine coastal people's livelihoods (Barbesgaard, 2018; Bennett, 2019). The blue economy extends from the idea of the green economy (Barbesgaard, 2018; Silver et al., 2015) and has generated concerns over equitable distribution and justice in the utilisation of coastal and ocean environments (Bennett et al., 2019; Jentoft et al., 2022). It has therefore been a focus of political ecology research. Political ecology emerged to understand how environmental and political forces interact to mediate social and environmental change (Bassett & Peimer, 2015; Bryant, 1992; Nygren & Rikoon, 2008). Academic literature has emphasised the significance of political ecology for understanding marine resource access, exclusion and displacement, and the socio-economic struggles of poor and disadvantaged communities (Childs & Hicks, 2019; Kadfak & Oskarsson, 2020; Maharaj, 2017; Nolan et al., 2020; Quist & Nygren, 2015).

Recent political ecology scholars have critiqued dominant blue economy paradigms, linking increasing incidences of 'ocean grabbing' or 'blue grabbing' (i.e. acts of dispossession or appropriation of marine resources or spaces) to the growth imperatives of the blue economy (Barbesgaard 2018; Bavinck et al., 2017; Benjaminsen & Bryceson, 2012; Childs & Hicks, 2019; Morrissey, 2017; Winder & Le Heron, 2017). Others have argued for blue degrowth as an alternative to the blue growth 'growth-driven' imperative and advocated for a more critical understanding of the concept (Ertör & Hadjimichael, 2020). In this study, two concepts within political ecology are used - accumulation by dispossession and securitisation. The study draws on these two political ecology notions to examine the impact of port developments, expansions, and operations on local fishing livelihoods in Ghana's blue economy. In the context of rapid transitions and transformations in the blue economy (Barbesgaard, 2018; Brent et al., 2020), these conceptual framings are crucial for demonstrating the territorial enclosures occurring in Ghana's maritime space (Bavinck et al., 2017; Bush & Marschke, 2016).

The concept of accumulation by securitisation (Massé & Lunstrum, 2016) captures how capital accumulation, often tied to land and resource enclosure, is enabled by the practices and the logic of security. State or private actors often impose securitisation logic by, for instance, declaring a specific territory a security zone, militarising it, and erecting a buffer zone to exclude others

(Massé & Lunstrum, 2016). The notion of securitisation emanates from the Copenhagen School (Lupovici, 2014), and has significantly influenced the discourse surrounding 'green grabbing' - a contemporary phenomenon characterised by the accumulation of land and natural resources and the marginalisation of vulnerable communities (Corson et al., 2013; Fairhead et al., 2012; Green et al., 2015). Although securitisation provides valuable insights into the framing of an issue as a security threat, there is a potential for oversimplification and reductionism that may overlook the intricate interplay of multiple social, political, and historical factors that influence the construction and contestation of security issues (Lupovici, 2014). Furthermore, securitisation theory frequently disregards non-securitised approaches to problem-solving, thereby constraining the understanding of broader socio-political dynamics (Lupovici, 2014; Stritzel, 2007).

Increasingly, a growing number of political ecologists have begun to examine the securitisation of the blue economy as a form of market-oriented expansion and accumulation in the maritime space (Barbesgaard, 2018; Barbesgaard, 2019; Brent et al., 2018; Kalina et al., 2019; Zhang & Bateman, 2017). This growing body of research demonstrates that the processes governing access to the ocean and coastal spaces are structured in complex power relations within a politicised ocean economy (Bennett, 2019; Satizábal et al., 2020). Coastal areas and marine resources are enclosed and privatised by state and private players, resulting in the displacement of peasant and fishing communities (Barbesgaard, 2018). Those with power often use the securitisation narrative to help secure nature, enclose it, and profit from it while disadvantaging the poor and less powerful (Kalina et al., 2019). Small-scale fisheries, for instance, are entangled in rationales of maritime border security (Song, 2021) as states safeguard their maritime space for blue economy developments (Childs & Hicks, 2019). Moreover, as exemplified in the port of Durban in South Africa, growth-driven objectives push states to employ securitisation narratives to marginalised subsistence fishers (Kalina et al., 2019; Maharaj, 2017).

The notion of accumulation by dispossession (Harvey, 2003) emanates from Marx's concept of primitive accumulation. Marx's notion of primitive accumulation described a historical phase of capitalist development, emphasising the origin of capitalist social relations and labour exploitation, particularly in the Global North (Roberts, 2020). Primitive accumulation has been expressed in several different conceptions, with accumulation by dispossession as one of the many variations of primitive accumulation (Hall, 2012). However, critics have observed that the varied conceptions of primitive accumulation impede its effectiveness. For instance, they argue that non-capitalist social forms are under-theorised (McCormack & Barclay, 2013), and there are

disagreements about the boundaries of its characteristics, consequences, and intentions (Hall, 2013). Despite its shortcomings, the concept of accumulation by dispossession in this study provides a broad understanding of how market and growth-oriented relations produce exclusion in the process, particularly for the less powerful (Harvey, 2003; Prudham, 2007). It describes the processes and patterns of marginalisation and exclusion enabled by global capitalist development (Hall, 2013; Harvey, 2003; Roberts, 2020). It emphasises how capital accumulation prioritises the 'rights of private property and profit' over other rights, effectively dispossessing those who lack the means to accumulate (Harvey, 2008, p. 23).

The mechanisms of accumulation can be economic, as in capitalist social relations, or non-economic, as in the notion of accumulation by dispossession, which includes force and violence (Massé & Lunstrun, 2016). Ghana's port development and industrialisation have taken a neoliberal route, with a quasi-state authority enclosing coastal areas, undertaking evictions, and enforcing securitisation. Both accumulation by dispossession or by securitisation can be situated within the primitive accumulation literature; however, the former stresses the motives of those accumulating, while the latter highlights the tools/mechanisms that enable the accumulation. As a result, this study employs these political ecology theoretical insights as a critical lens to understand how coastal transitions shape coastal fishing livelihoods in Ghana.

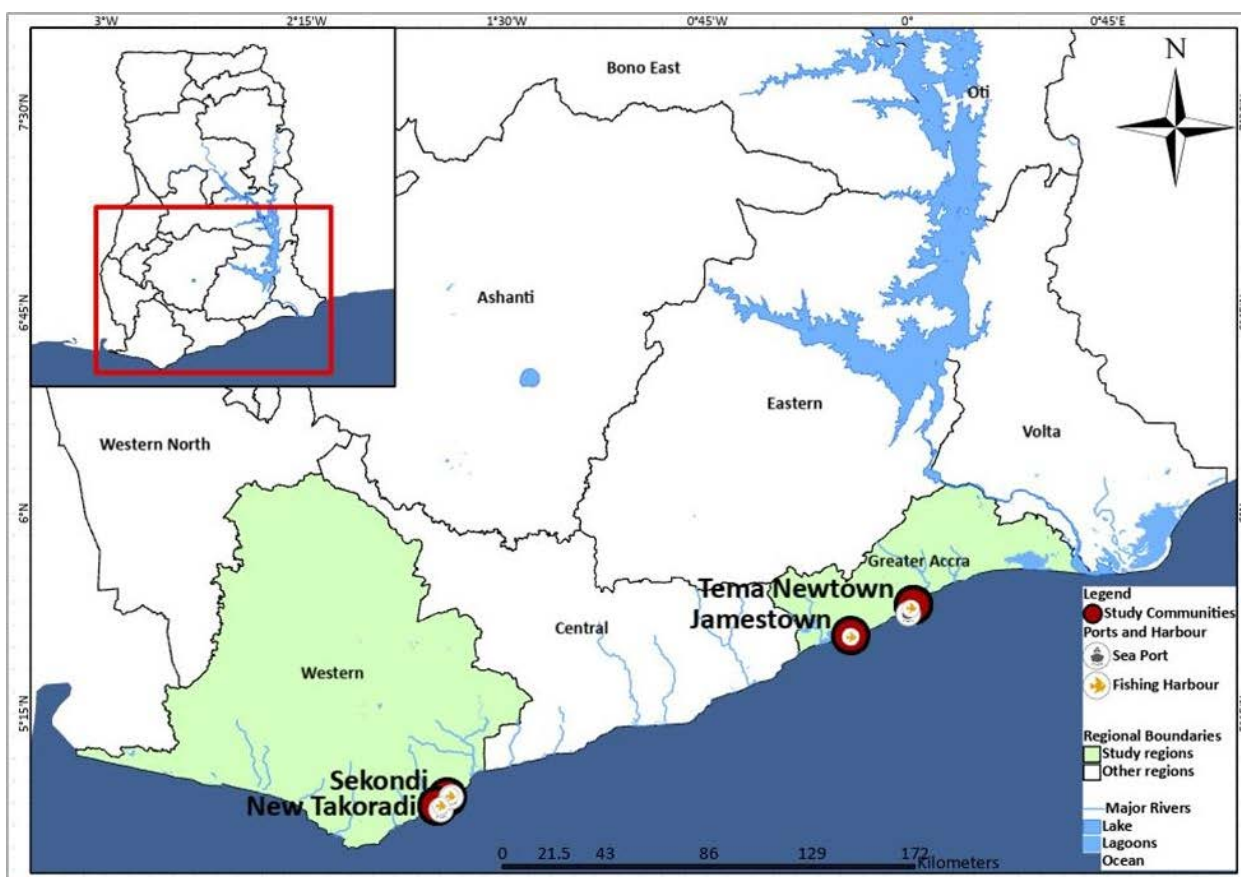
5.3 Methods and materials

5.3.1 Study area

With a population of about 30 million and a GDP of USD 67 billion, Ghana is classified as a lower-middle-income country (Ghana Statistical Service, 2021; World Bank, 2021). It has a total land area of 227,540 km² and a coastline of 550 kilometres (Bank of Ghana, 2008). Ghana's continental shelf has approximately 225,000 km² of maritime space, including a 200 nautical mile exclusive economic zone (Nunoo et al., 2014). Fish is essential to the Ghanaian diet and economy, with around 10 per cent of Ghana's population employed in the fishing sector (Sarpong et al., 2005; MoFAD, 2015).

This research is conducted in the two Ghanaian coastal regions where the country's commercial ports are located, the Western Region and the Greater Accra Region (Figure 5.1). The four study communities - Sekondi and New Takoradi in the Western Region, and Jamestown and Tema

Newtown in the Greater Accra Region - are urbanised areas. The Tema Newtown and New Takoradi communities are relocated settlements that gave way to the construction of the ports of Tema and Takoradi, respectively. Sekondi and New Takoradi are in the same local administrative district, while the other two are in separate administrative districts. Except for Jamestown, where there is ongoing harbour construction, all the other communities are adjacent to Ghana's two main ports. Table 5.1 presents an overview of selected sociodemographic features of the communities studied. It is important to note that the high average catch in Jamestown may have been influenced by catches from other areas, such as Chorkor, Gbegbeyisee, and Osu, who mostly land their catches at Jamestown. Additionally, the catch data for Tema and Sekondi-Takoradi may not reflect the actual fishing effort and production in these areas, as some small-scale fishers may not record their catches or choose to land their catches in nearby communities.



5. 1: Map showing the location of study communities (Author, 2022)

Table 5. 1: Selected characteristics of the study locations

Study Communities	Tema Newtown	Jamestown	Sekondi	New Takoradi
-------------------	--------------	-----------	---------	--------------

Name of Port/Harbour in the community	Port of Tema	Jamestown Fishing Harbour Complex (Ongoing)	Sekondi Fishing Harbour	Port of Takoradi
District area	Tema Metropolitan	Accra Metropolitan	Sekondi-Takoradi Metropolitan	
Population of district	292,773	284,124	445,205	
Land area (Km ²)	396	200	664	
Number of local canoes	574	470	664	
Number of local fishers	5,340	2,981	4,542	
Five years average catch (MT)	4,000	52,902	5,000	
Main fish species	Anchovy (<i>Engraulis encrasicolus</i>), Sardinellas (<i>Sardinella spp</i>), Bumper (<i>Chloroscombrus chrysurus</i>), Frigate Mackerel (<i>Caranx hippos</i>), and Chub Mackerel (<i>Scomber japonicus</i>)	Round Sardinella (<i>Sardinella aurita</i>), Bumper (<i>Chloroscombrus chrysurus</i>), Frigate Mackerel (<i>Caranx hippos</i>) and Flat Sardinella (<i>Sardinella spp</i>)	Sardinella (<i>Sardinella spp</i>), frigate Mackerel, (<i>Auxis thazard</i>) and long-finned Herring (<i>Ilisha africana</i>)	

Source: Fisheries Scientific Survey Division (Dovlo et al., 2016); Ghana Statistical Service (2021)

The four communities were selected for the study because of their proximity to Ghana's main ports. According to the Marine Canoe Frame Survey conducted by Ghana Fisheries Scientific Survey Division, the communities are active fishing destinations (Dovlo et al., 2016). The settlements are among the busiest of Ghana's 186 coastal fishing communities, with fishing and related activities such as canoe manufacturing, net repair and drying, fish processing, and formal and informal fish marketing as the primary economic activities (Dovlo et al., 2016). In Sekondi and New Takoradi, for example, small-scale fishing accounts for nearly 85 percent of fishers' monthly income (Owusu & Adjei, 2021). In the four communities, small-scale fishing actors faced similar disruptions in fishing livelihoods due to securitisation and dispossession related to port development, expansion, and operational activities.

5.3.2 Data collection

The study used qualitative research methods involving focus group discussions and one-on-one interviews with local fishing actors and a port manager to address the main research question - how has access to and exclusion from coastal and maritime space influenced fishers' livelihoods

in Ghana port communities? The interview with the port manager was limited to one participant due to the Covid-19 pandemic and the general difficult nature of conducting research interviews with prominent elites - 'studying up' (Nader, 1969). The port manager is a government official from the Ghana Port and Harbour Authority, the institution responsible for managing the ports and harbours in Ghana. I also relied on information from the GPHA's 2019 institutional report to supplement the field interview. The small-scale fisheries participants were chosen using a purposive strategy, which took into account their vast knowledge of community-based fisheries, marine livelihoods, and local fishing situations. Specifically, in Ghana's coastal communities, the chief fisher (*apofohene*) and the chief fish trader/processor (*konkohemaa*) constitute the primary fishing decision-makers (Ameyaw et al., 2021; Bennett & Bannerman, 2002). These community leaders arbitrate disagreements among fishing actors and enforce local laws and customary management practices in their communities (Kassah & Asare, 2022). One-on-one, in-depth interviews were conducted with one chief fisherman and one chief fish processor from each community, making four chief fishermen and four chief fish processors from the four communities. In addition, five selected local fishers (men) and five local fish processors/traders (women) who serve on the local fishing committees were recruited to participate in two separate focus group discussions in each of the four fishing communities, resulting in a total of 12 people from each of the four fishing communities participating in the data collection.

The Covid -19 pandemic constrained the number of participants recruited for interviews because data collection in Ghana occurred during the second wave of the pandemic. Despite this limitation, the variety of small-scale fishing actors in each community represents the key decision-making actors who are well-informed about the community fishing concerns and developments. Overall, the study comprised 24 men and 24 women, reflecting the gendered labour division in Ghana's small-scale fisheries value chain (Britwum, 2009). All the participants were recruited through contact during a community visit, followed by face-to-face interviews performed by a research assistant following an interview guide I developed. I took part in the field interviews remotely using Zoom technology and direct phone calls due to Covid-19 international travel restrictions at that period. We identified influential fishing community members as gatekeepers to overcome potential access barriers to conducting interviews with research participants. All research participants voluntarily consented to be interviewed, including being audiotaped. The interviews lasted between 30 and 90 minutes and were conducted in Ga and Fante, the indigenous languages of Greater Accra and the Western area. The interviews

revealed a nexus between fishing communities' exclusion from and access to coastal and maritime environments and the repercussions on their fishing-based livelihoods.

5.3.3 Data analysis

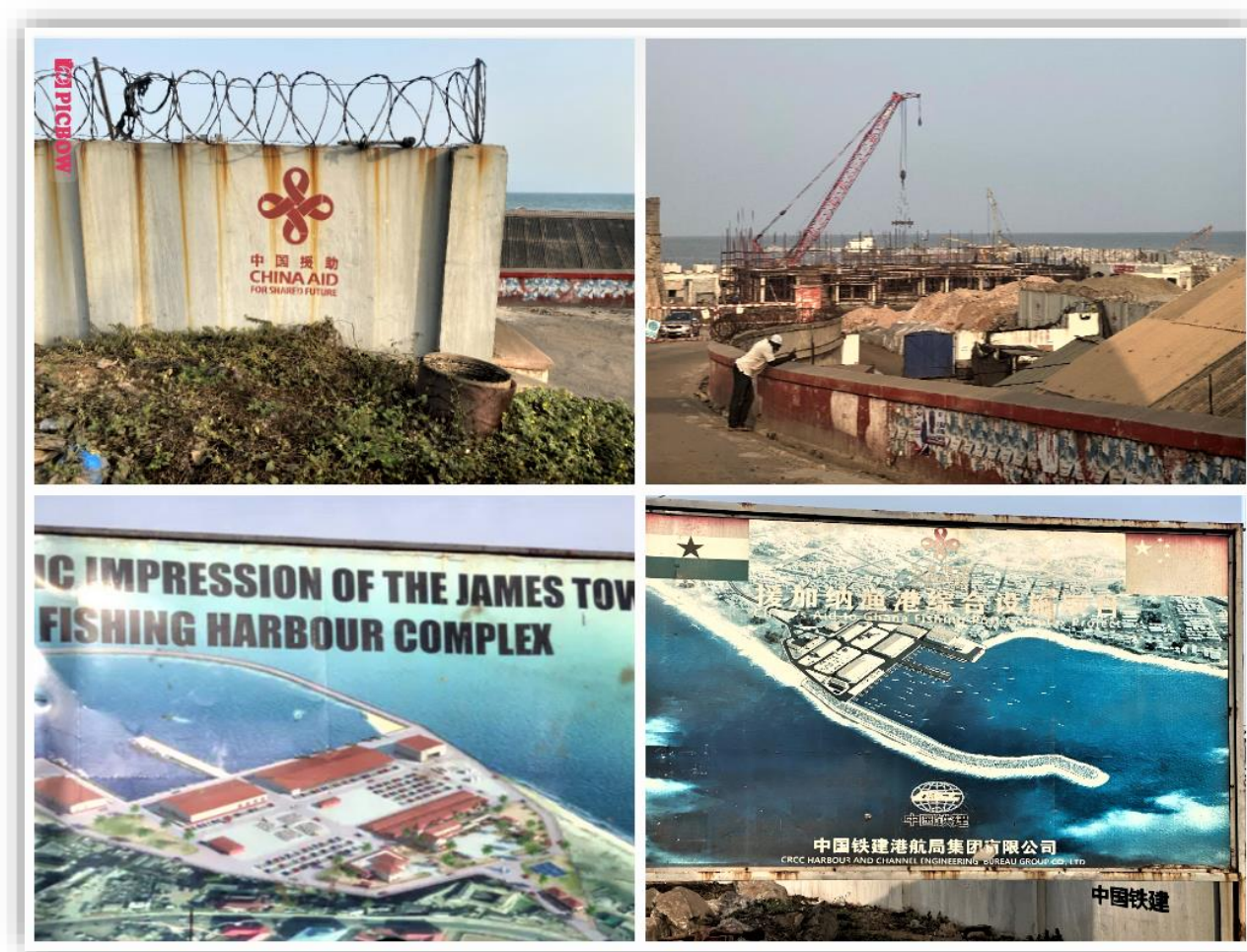
The research assistant translated the Fante interviews verbatim into English, and the Ga interviews were translated into English through an interpreter. NVIVO-QSR International, a qualitative data analysis programme, was used to analyse the codes from the transcribed interviews. Familiarisation with the data allowed for the identification of themes. The transcripts were read multiple times before coding, and then the codes were re-evaluated and validated again by reading codes against the original transcripts. The multiple readings of transcripts ensured that the data was thoroughly understood before coding, and the validation of codes by re-reading them against the original transcripts provided an additional check to ensure the accuracy and reliability of the codes. This process helped ensure that the codes generated accurately reflected the content of the transcripts and that the results accurately reflected the data collected. Using a case study methodology (Yin, 2013), the four communities are grouped into two case studies to form the findings section: i) the Jamestown fishing harbour complex and ii) the ports of Tema and Sekondi-Takoradi. The context-specific advantage of the case study approach aligns with the political ecology theoretical themes used for the study. The study also utilises peer-reviewed and grey literature and media reports to support the findings and discussions.

5.4 Research findings

5.4.1 Case Study 1: the Jamestown fishing harbour complex

Following the gold and cocoa boom of 1879, the British colonial administration constructed the Jamestown port to provide docking space for smaller surfboats that ferried goods in and out to the ships anchored in deeper water (Malkoc, 2020). In the 1960s, the Jamestown port was decommissioned with the development of a modern port - the Port of Tema. However, it remains a relevant site for the small-scale fishing livelihoods of the approximately 2,000 inhabitants in the Ga-mashie neighbourhood. This community has used the harbour area for small-scale fishing activities, including canoe docking, construction, fishing equipment repair, and smoking and trading of fish (Malkoc, 2020). In 2018, the government of Ghana initiated state-sponsored demolitions in the area to develop a fishing harbour complex, sparking broad contestation by the fishing communities (Citi Newsroom, 2021; VOA, 2020). Supported by USD 50 million from China Aid, the Jamestown Fishing Harbour Complex (Figure 5.2) involved dredging a harbour

basin of 100,000 cubic meters and constructing hydraulic structures and other facilities covering an area of 13,000 cubic meters (Citi Newsroom, 2021; Graphic.com.gh, 2020). The harbour also includes fish landing sites, cold storage facilities, market areas, and other social amenities. Those backing the new harbour project emphasised that it would modernise Ghana's fisheries, including small-scale fishing, and maximise the country's fishing potential, by creating about 1,000 job opportunities in the local community (Dredging Today, 2018). In this case study, the interviewed local fishing actors in Jamestown described significant disruptions to local fishing, fish smoking, and small-scale fish trading as a result of the new port project.



5. 2 Images showing construction work in progress at the proposed Jamestown Fishing Harbour Complex and artistic impressions of billboards around the construction site

Source: Authors (2022).

Displacement of small-scale fishing actors

Jamestown is an important fishing community in Ghana, with fishing activity dating back to the 16th century. The local population comprises the Ga people and migrant workers from Ghana and other West African countries (Wrigley-Asante & Mensah, 2017). Fishers, fish traders, and processors in Jamestown live and work together in a small neighbourhood called Ga-Mashie. The Ga-mashie fishing neighbourhood has an intimate relationship with the sea that is dictated by its connection to fishing. On the beach are businesses, dwellings, schools, worship centres, and drinking bars; the fishermen consider the neighbourhood to be their home.

From 2015 to 2018, the Accra Metropolitan Assembly (AMA) repeatedly brought bulldozers and military personnel to demolish the fishing community's buildings to get the fishing population, who mostly lack tenure rights, to evacuate the area. Since the first round of demolitions in 2015, the cycle of residents returning to the port following each demolition occurred at least three times (Malkoc, 2020). In 2018, the AMA successfully demolished the buildings and other properties of the fishing community, making way for what the government described as the 'Jamestown Fishing Harbour Complex'. However, these state-sponsored demolitions have displaced local fishing actors and disrupted traditional coastal fishing livelihoods. The local fishing actors have raised concerns about the demolition of both temporary and permanent structures, including schools and churches. The fishers, traders, and processors could not relocate their businesses and property before the AMA demolished the neighbourhood. According to the participants, the AMA forcibly evicted them by deploying state security forces before demolishing their structures without notification, a claim that has been disputed by the AMA (The Ghana Report, 2020). The local authority insisted that only 'illegal structures' were demolished and that they gave adequate warning to the small-scale fisheries actors, but they refused to cooperate (Citi Newsroom, 2021). In the media, some of the fishers reportedly confirmed that the AMA met with them before the demolition (The Ghana Report, 2020). Small-scale fishing households in Ghana mostly lack tenure rights to seafront landing areas, as the lands belong to either individuals or the local community chief (FAO, 2021). In addition, Ghanaian law does not grant illegal squatters or settlers the right to compensation unless they can demonstrate a legal claim to the property (West Africa Regional Fisheries Program, 2011). One of the local fishers explained their frustration:

As poor fishers, we have been deprived of our land and means of subsistence. The Jamestown neighbourhood was all we had, and we did everything there, but the

government and the politicians have driven us out of our own community as if we were criminals because of the harbour project. (Interview #2, a 50-year-old fisherman)

The AMA relocated the fishing actors in the Jamestown community to a new beach area approximately 2 kilometres east of the original location. The new location is next to a site proposed by the Ghanaian government for a business and recreational project - Marine Drive Project (Citi Newsroom, 2023), which small-scale fishers and traders claim is temporary. They contend that the area is unsuitable, lacks appropriate shelter, and is too rough for canoe landings, as fishermen routinely report gear damage and potential canoe capsizes. In addition, the seafront lacks a berthing point, cannot accommodate the community's large number of canoes and is unsuitable for repairing fishing nets and building canoes. During the data collection, some of the issues raised by the fishers were visible at the location. Fishers fear they may lose the beach area to the recreational project and may not be admitted back into the harbour when it is completed. One of them explained:

The government might ask us to leave our community beach forever, but we will keep fighting. We are aware that more Chinese trawlers are being introduced into our waters every day by these same politicians and that they may require docking space. I am afraid that the new fishing port complex project is for trawlers and other big fishing companies. (Interview #1, a 56-year-old fisherman)

According to the fishers, most of the displaced fishers' have migrated to other communities with few crew members, leaving most of the crew in the original community without a source of livelihood. Small-scale fishing in Ghana is a labour-intensive endeavour, with crucial pre- and post-harvest activities requiring a substantial labour force. A single canoe may employ up to eight or more crew members. Over the years, the fishing operations and arrangements have provided the community with the necessary employment that has now been interrupted by the new harbour project.

Furthermore, the local fish processors and traders contend that their smoking ovens and sheds were demolished and subsequently relocated. They explain that the current location is temporary because of the nearby recreational development project. As a result, fish processors are reluctant to invest in permanent ovens and sheds due to uncertainty regarding their tenure and future. They

argue that the new location's landscape is also unsuitable for the smoking, drying, and selling of catch, which they argue impacts the ability to process catch. In order to preserve the freshness of the fish, processors and traders incur additional costs for freezing fresh catches and procuring improvised containers. Additionally, traders have also stressed the problem of customer attrition, as they have observed a significant drop in clients due to their inability to access new locations. A sizable proportion of urban customers (backpackers, expatriates, and the hospitality business) who relied on them for fresh seafood are lost to cold store operators in the city. A processor summarised:

[The local authorities] refused to make any arrangement for us in this new space... we have lost our men who give us fish, our customers who buy our fish and we have also lost our processing facilities. (Interview #8, a 47-year-old processor)

According to the processors who participated in this study, fishers have migrated elsewhere to form new alliances in other fishing communities, depriving them of the necessary catch volume to process, market, and finance more fishing expeditions. The processors and traders argued that they cannot finance more fishers to increase the volume of catch landings, as the once-profitable fish trading business is now struggling due to a lack of sufficient catch. They emotionally recounted their social and physical disconnects from fishers, with whom they had built trusted relationships to maintain reliable fish supplies. Both local fishers and traders unanimously contended that Jamestown had lost its prominence as a tourist destination due to the disruption of the community's thriving fishing culture. Jamestown is a famous beach destination in Ghana's capital, where tourists observe indigenous fishing culture, distinctive scripted canoes, and vibrant traditional fish smoking practices using an oven called 'Chorkor Oven'.

5.4.2 Case Study 2: the ports of Sekondi-Takoradi and Tema

Sekondi-Takoradi lies in the West Region, 200 kilometres from Accra, the capital of Ghana. The communities began as two fishing settlements located a few kilometres apart and eventually developed into important trading centres due to their proximity to each other (Yankson et al., 2017). The Port of Sekondi -Takoradi, including the fishing harbour, was constructed in 1928. Since Ghana's independence in 1957, it has been expanded with additional berthing construction and refurbishment, particularly during the Economic Recovery Programme. As of 2020, the

vessel carrying capacity in the Port has grown, handling 28 percent of national seaborne traffic, 17 percent of national seaborne imports and 64 percent of exports (GPHA, 2019). Since Ghana discovered oil in commercial quantities in 2007, the Port of Sekondi - Takoradi has become the hub for offshore supply vessels in the Jubilee Oil Fields off the Western Region at Cape Three Points. The Port of Sekondi - Takoradi breakwater current extends 2.7 km long, with an 800-metre bulk jetty under construction, a 590-metre quay wall and a 16-metre-deep berth pocket (GPHA, 2022). The Port has focused on infrastructure expansion and facility upgrades to maintain a competitive edge in the West African subregion's oil and gas sector. Alongside the Takoradi port lies the Sekondi fishing harbour, which was recently renovated with financing from the Japan International Cooperation Agency (JICA) (Gyan et al., 2020). In addition to its two piers, the Sekondi fishing harbour is equipped with an ice-making plant, an ice storage facility, and a fish-handling and marketing area (Gyan et al., 2020).

The Port of Tema is the largest deep-water seaport in Ghana, located about 29 km east of the capital, Accra. Commissioned in 1962, the Port of Tema consisted of two breakwaters that enclosed an area of 500 acres, including 12 berths, cocoa sheds, a dry dock, a slipway, a workshop, and offices. In 1964, it expanded with the development of a new shipyard complex and the acquisition of an additional 64 square metres of land north of the Port of Tema for workers' residential housing. With the robust economic growth and rapid maritime trade in Ghana and the subregion, particularly in the northern Sahelian countries, the port managers developed new container terminals. To accommodate increased container traffic, the Port has expanded westward since 2010. The port operation has also undergone significant restructuring, including increased private-sector participation, with some considerable port services now privatised. An important part of the Port of Tema is the Tema Fishing Harbour. The harbour is designed to accommodate a wide range of fishing vessels, from small boats used by local fishers to large trawlers operated by industrial fishing companies.

This section discusses how the rising privatisation of certain portions of the Port, along with port expansion and continued development, has resulted in substantial securitisation at and around the Port, and negatively impacted the fishing community, including socio-cultural dimensions. This study considers the two existing seaports in Ghana (Sekondi-Takoradi and Tema) as a single case because they have experienced similar developments, and the impacts and disruptions to the coastal fishing communities are comparable.

Securitisation and port expansion

Successive Ghanaian governments have invested considerably in maritime security as part of the country's blue economy modernisation and growth-driven efforts amidst the increasing cases of pirate attacks along the coastline (Business and Financial Times, 2021). In 2011, the previous National Democratic Congress government acquired four Chinese-made patrol ships to bolster Ghana's maritime security, citing the need to protect 'the country's territorial integrity and provide safe sea passage for legitimate traffic while combating illegal activities' (Stop Illegal Fishing, 2011). In addition, the current ruling New Patriotic Party government commissioned four Israeli-built special security vessels in 2022 (Figure 5. 3) to combat illegal maritime activities on Ghana's coastline (Citi Newsroom, 2021; Myjoyonline.com, 2022). According to the President of Ghana, Nana Akuffo Addo, the intervention will 'protect [the] maritime domain to boost the blue economy sectors, which include shipping, fishing and offshore oil and gas production' (Citi Newsroom, 2021).



5. 3: The President of Ghana, Nana Akuffo Addo (middle of first row), in 2022 commissioning four operational ships for the combating of illegal maritime activities

Source: Myjoyonline.com, 2022

The GPHA, a quasi-state authority, has implemented safety and security measures to secure the operational environment and installations in the ports of Tema and Takoradi. According to GPHA, these measures aim to guarantee the safety of investments within the ports and to bring the ports into compliance with the International Ship and Port Facility Security Code (ISPS) (International Maritime Organisation [IMO], 2003). The GPHA emphasises that seaport expansions and efficiency would significantly propel the country's economic growth potential, benefiting the local fishing communities through increased employment (GPHA, 2022). However, small-scale fishing participants interviewed in the port communities have raised concerns about their precarious livelihoods due to port expansions driven in part by securitisation concerns. In pursuing such securitisation measures and growth-oriented port expansions, officials prohibit fishing in proximity to some specific zones, including the expansion area and docking zones of cargo and industrial fishing vessels, resulting in tension between the port authorities and local fishers. According to the participants in Tema New Town, Sekondi, and New Takoradi, port authorities have frequently cited security concerns, such as increasing cases of armed robbery and pirate incidents, to justify the confiscating of their fishing equipment. They claim that fishing areas have been reduced because a large portion of the ocean's surface has been securitised, limiting their access to near-shore fishing grounds due to port expansion and operations.

The fishers oppose the security arguments of the port officials and allege that they had an understanding with them to fish in those areas periodically. They claimed that vessel food residue attracts fish to those locations, and the prohibitions deprive the local fishers of the necessary catch. In Tema and Sekondi-Takoradi, fishers claim that there are now stringent restrictions and arrests of local canoe operators in the Port. The port official who participated in the research argued that the decision to restrict the fishers to specific zones of the Port is because Ghana risks international sanctions if local fishing activities affect the port operations. The port manager explains:

Fishers frequently use local canoes for illegal activities, and there have been instances in the past involving illicit drugs violating international port regulations. You cannot take a foreigner (tourists) from the canoe basin or load items to and from the vessel because everything needs to be inspected. (Interview #10, a 49-year-old Port Manager)

However, local fishers have opposed the port manager's argument, stating that the decline in fish catches has driven some of them to transport tourists and provide chandler services in order to make a livelihood. Although reports indicate the occurrence of pirate activities along the coast of Ghana, no substantive evidence exists that establishes a connection between small-scale fishers and instances of drug trafficking and robbery in the port (Modernghana.com, 2021).

Since the construction of the Sekondi and Tema Fishing Harbours, the port authorities have zoned them. The Tema Fishing Harbor has four main zones: an outer and inner fishing harbour for industrial vessels, a canoe bay for traditional fishing activities, and a commercial area for fish trading. Similarly, the Sekondi Fishing Harbour comprise two piers, local fish handling bay, and a commercial shed, including an ice-making and storage plant. In the commercial areas of both fishing harbours, women sell both locally harvested fresh fish and frozen fish from nearby cold stores. The GPHA controlled the fishing harbours, including the canoe bay area, which the port authority considers a form of corporate social responsibility to the local fishing communities. The daily activities in the canoe bay are managed by the chief fishermen, who serve as leaders of the fishers. There is limited space to expand the canoe bay due to the presence of port installations designated as security zones. The increased fishing population in the communities over the years has led to congestion at both the Tema and Sekondi-Takoradi fishing harbours. As a result, fishers are squeezed into the canoe bay, which is affecting how local fishing is organised. Local fishers in Tema, for instance, reported at peak season, particularly during the Covid-19 pandemic, when social distancing procedures were enforced, they queued up to unload their catch. Likewise, at the Sekondi Fishing Harbour, the limited docking space available in the canoe bay has become a source of conflict for small-scale fishing actors. The high volume of industrial fishing vessels also leads to congestion, which causes damage to canoes and fishing gear. A fisher explained:

This space in the Port [referring to the canoe basin in Tema] is now too small for us. The number of boats here is way too many, so we wait for long hours before you can get space to offload your fish, which reduces the quality of the catch and our profit margin.

(Interview #18, a 42-year-old fisherman)

Port securitisation does not disrupt industrial fishing activities in the same way as the small fishers because they are better equipped and can conduct deep-sea fishing uninterrupted. However,

it is important to note that piracy and armed robbery attacks also pose a significant disruption to industrial fishing operations. In the Sekondi port, for instance, small-scale fishers contend that the breakwater and piers at the canoe basin are unsuitable for their small canoes, thus giving the industrial and semi-industrial vessels a docking advantage over them. The local fishers in Tema and Sekondi have accused port authorities of denying them tenure rights to the designated canoe basins in the port area. Local fishers demand that they govern the canoe bay themselves, as is the case with other fishing communities, which they believe would stop the constant threats by the port authorities and potential future eviction. A chief fisher explained:

Our voices are neglected, but we are affected by every action in this Port. Since the port authorities are in charge of this canoe bay, when we meet with them, we only receive orders and instructions regarding where we may and cannot fish. (Interview # 16, a 54-year-old fisherman)

In addition, the significant increase in cargo and industrial vessel movement has reduced fishing space at and around the Port. The fishers also complained of considerable vessel traffic occasionally overflowing the fishing zones and the local fish-landing bay. Some local fishers, who cannot afford the high fuel cost and crew to travel far for fishing trips, choose to forego fishing or relocate from the community. A fisher said:

As fishers in this community, we invest additional time and fuel travelling to fishing locations outside of the port area in order to avoid accidents with big vessels. Even at sea, we feel the congestion; we hardly get the space to cast our nets, so we have to keep going further and farther away from land. (Interview #25, a 39-year-old processor)

Furthermore, the government has compulsorily acquired large portions of the communities' land to develop the Tema and Sekondi-Takoradi ports. In contrast, the fishing communities are squeezed into densely populated neighbourhoods. Local fishers in Tema New Town, Sekondi, and New Takoradi argue that rapid urbanisation due to the port development is uneven as they are left behind. Initial communities' settlements occurred decades ago when residents had to be relocated for the ports to be built. While the communities remained formally part of the busiest urbanised port cities due to proximity, fishers are practically disconnected from the fortune of

urbanisation, including essential community services such as access to clean water and proper drainage. The fishers explained that becoming part of port cities exposes them to urban economic pressures, including rising food costs and rent, making it difficult to meet these basic needs with their fishing incomes. For example, small-scale actors attribute Tema Newtown's degeneration into a slum to the high cost of rent, blaming it on the government's decision to locate the Port on their ancestral land. Similar claims have been made by the International New Town Institute (2022), attributing the transformation of Tema Newtown into a slum to the port development. The effects of port development on coastal communities are a global issue. Such developments often result in a loss of traditional livelihoods, displacement, and a decline in the quality of life for fishing communities (see Okafor-Yarwood et al., 2020).

Further, biophysical interactions, such as extensive dredging for port expansion, have influenced the socio-cultural dimensions of the fishing communities. Specifically, the entire beach area in New Takoradi has been converted into a sea defence wall, depriving the residents of beach space for recreation. Also, the local fishing actors argue that the presence of the ports eroded their traditional and cultural values. They contend that industrial businesses, shipping vessels, and large fishing trawlers in the ports disregarded the long-standing tradition of refraining from going to sea during specific periods of the year, especially during coastal fishing festivals. In particular, fishers in Tema New Town also lament the damage to a spiritually significant stone on the coast due to port expansion.

5.5 Discussion and conclusion

This study is based on empirical research conducted in Ghana, drawing on case studies organised according to two forms of marginalisation experiences: dispossession and securitisation. The study unpacks how the notion of accumulation by securitisation and dispossession occurs in practice through the experiences of small-scale fishing actors in Ghana's port communities. The shift to the blue economy has opened up the ocean and coastlines for social-material transformations, including port development, raising equity issues in the distribution of maritime resources (Barbesgaard, 2018; Bennett et al., 2019) that require further theoretical enquiry. The study has demonstrated that the growth-oriented imperatives of new ports or large port expansion and development in Ghana have lost sight of the potential impacts of exclusion and marginalisation on local coastal livelihoods. These forms of accumulation leading to dispossession, especially for fishing livelihoods, have been extensively documented in maritime

frontiers (Bavinck et al., 2017; Kalina et al., 2019; Maharaj, 2017), sometimes described as coastal (Bavinck et al., 2017) or ocean (Bennett et al., 2019) 'grabbing'. Although a less explicit depiction of neoliberal expansion, this study contends that ocean/coastal grabbing can be situated within the primitive accumulation literature as another crucial mechanism of neoliberal dispossession.

The Government of Ghana, through the GPHA, has initiated large-scale infrastructure development to allow the ports to receive larger vessels, handle more cargo, increase storage capacity, reduce the cost of trade, and thereby increase Ghana's regional trade capacity (African Development Bank [AfDB], 2017). Ghana's ambition to be the maritime gateway in the West African sub-region and to boost its mineral exports has resulted in the expansion of the Port of Tema to become the preferred Port for the neighbouring Sahel countries, and the Port of Takoradi to become the West African hub for the emerging oil and gas industry services (GPHA, 2022). However, in the process, the securitisation of port areas has enclosed access to coastal and ocean spaces, and fishing resources depended on by nearby fishing communities, substantially affecting their fishing livelihoods. Additionally, in the Jamestown area, a new harbour project that aims to modernise and harness the country's fishing potential has exacerbated the displacement of small-scale fishing livelihoods.

Small-scale fishing livelihoods in the rapidly transformed urbanised port communities of Tema Newtown, New Takoradi, and Sekondi are entangled in complex social, political, and material processes, contrary to the common assumption in the conservation science literature that small-scale fishing actors are concerned with declining fish stocks and the necessary technology needed to secure catch (Kadfak & Oskarsson, 2020). Emerging transformations associated with the urbanisation of the community, economic growth objectives through port developments and expansions, and port governance measures have resulted in unstable livelihoods for the adjacent fishing communities. Local fishing communities have been excluded from their traditional fishing grounds and locations, with Ghanaian port authorities claiming that they are implementing security measures in the port area in line with international standards (Kalina et al., 2019; Maharaj, 2017). Similar security risk narratives have been advanced against small-scale fishers in oil and gas production communities in the Western Region of Ghana by state officials and private companies (see Adjei & Overå 2019). The GPHA exercises much discursive power, portraying small-scale fishers as ignorant, illiterate, traditional, and irresponsible to justify

securitisation actions. For instance, the GPHA continues to manage the canoe bays in Ghana's fishing harbours instead of allowing the small-scale fishers to make their own operational decisions. In addition, fishers assert that they are minority stakeholders in the port community whose opinions are easily disregarded because port officials consider them poor fishers. The perception of branding fishers as backward and small-scale fishing, in particular as synonymous with poverty, has been documented in the literature (see Adjei & Overå 2019; Béné, 2003). Local fishers interviewed argue that the strict restrictions imposed by the port officials are because the government prioritised commercial investments and port activity over them. This top-down view is reproduced even when local fishers are included in the decision-making processes in the ports, such as the management of the local canoe basin where they operate. This discourse shapes the imbalanced power relations between port authorities and small-scale fishers when the fishers negotiate access to fishing livelihoods in the communities around Ghana's two main ports (Maharaj, 2017).

Likewise, in the Jamestown community, the ongoing harbour project has become a site for contestation between small-scale fishing actors and local government authorities. From the 1960s until 2018, when a new fishing harbour project started, the old Port and surrounding coastal zones have been public spaces for fishermen in the community. The ongoing contestations are based on how each interest group perceives the present status of such coastal land in the Jamestown community. As Lund (2013) emphasised, the complexities of tenure interpretation deployed by different groups to support land claims are asserted in multiple interpretations and conceptions. These conceptions and interpretations of tenure, which may include ancestral rights, customary land title, or the legalisation of land authority by the central government, all serve to consolidate some forms of access, ownership, and control over land while excluding others (Andrews, 2018; Lund, 2012; Peluso & Lund, 2011). As noted by others, depending on the present prevailing conditions and the future ambitions of particular groups of players in land disputes, aspects of the 'past' could be reconstructed in an attempt to reclaim land (Kansanga et al., 2019; Knudsen, 2012; Lund & Boone, 2013).

In Ghana, the colonial government acquired the Jamestown coastal land from the traditional landowners in the late 1900s and developed the old Port. However, after constructing the Port of Tema in the 1960s, the government decommissioned the Jamestown port, and the community reclaimed the coastal land for small-scale fishing activities. Despite no official land title transfers

supporting the local fishing players' reclamation of the coastal land in the community, they now proclaim their ancestral rights to the land. In contrast, the government, through the local authorities, has declared the fishers in the Jamestown harbour to be squatters who lack economic and political rights to the coastal land. Furthermore, land tenure and user rights claims have emerged as critical concerns for urbanising fishing communities as urban economic development projects attempt to claim regions historically reserved for traditional fishing (Fabinyi, 2020; Fabinyi et al., 2022; Kadfak & Oskarsson, 2020). In Ghana, for instance, Denchie et al. (2021) illustrate how the growth of the petroleum sector has transformed land use and access, resulting in user disputes between investors and local people. In Jamestown, the local fishing actors are sceptical about the construction of the new fishing harbour because they are concerned about losing the community's coastal zone to other influential players, particularly industrial fishing trawlers.

Harvey (2003) argued that the ruling and political class consolidate power by dispossessing the less powerful of assets and livelihoods. In the case of mega-investment projects like the James Town Fishing Harbour Complex, local fishers are displaced of their assets and livelihoods, effectively excluding them (Malkoc, 2020). The local fishers interviewed, for instance, pointed to the artist's impression of the new fishing harbour complex, which does not show any local canoes. Instead, it depicts a reconstructed harbour with new shipping lanes, berths, seawalls, a breakwater and facilities to support industrial fishing, such as a fish-processing centre and market (see figure 5.2). Others have described the new harbour complex project as nothing short of a 'mechanised fish factory backed by China', as the Chinese government is financing the project (Jackson, 2019). On the other hand, the government draws on the modernisation narrative to legitimise the deployment of exclusionary actions such as repeated force evictions and demolitions (Hall et al., 2011). However, as argued by Overå (2011), the modernisation of Ghanaian fisheries has supported the rise of industrial trawlers relative to local small-scale fishing, significantly disrupting the local coastal fishing value chains. In the context of the Jamestown community, the government narratives and the fishing actors' traditional livelihood concerns present two competing interests, opposing ideas, and contested interpretations of facts.

To conclude, while the blue economy discourse underlines the need to balance competing interests in marine resources and spaces, its elusive character raises concerns about what blue growth means for diverse people and communities. A critical component of the blue economy is

the growth-driven imperative that promotes the commodification of natural resources and the growing territorialisation and securitisation of the ocean and coastal spaces by competing interests, including port developments, industrial/economic zones, and tourism (Barbesgaard, 2018; Childs & Hicks, 2019; Fabinyi et al., 2022; Kadfak & Oskarsson, 2020). Small-scale fisheries livelihoods are increasingly entangled in these diverse coastal transitions and developments. Notably, urban coastal fishing livelihood opportunities are increasingly constrained by the broader economic and political dynamics and trends along the coast. As demonstrated in Ghana, port developments, expansions, and operations have facilitated ocean/blue grabbing and the exclusion of urban coastal fishing livelihoods. The expansion of ports is facilitated through actions ranging from eviction and demolition to access restrictions. These actions are underpinned by Ghana's economic growth-oriented objectives to enhance international maritime trade, industrialise and become an oil and gas industrial centre in West Africa, and harness the country's fishing potential.

This study builds on the growing political ecology scholarship that questions the growth-oriented expansion in the blue economy (Barbesgaard, 2018; Bavinck, 2017; Ertör & Hadjimichael, 2020; Kadfak & Oskarsson, 2020). Barbesgaard (2018) argued that neoliberal tendencies drive the blue economy revolution with the potential to threaten coastal populations. This study demonstrates how the diverse forms of marginalisation impact urban coastal fishing actors' access to meaningful livelihoods in Ghana. This has potential impacts on food security because fish traders in coastal communities distribute fish products to large metropolitan markets in Ghana and other neighbouring nations (Ayilu & Niawung, 2022; Overå et al., 2022). In answering the question of how accumulation by dispossession and securitisation shapes urban coastal fishing livelihoods in Ghana, this study makes three contributions. First, by accentuating the voices of urban coastal fishing actors in Ghana, it demonstrates that securitisation is a crucial non-economic mechanism of accumulation that enables those who perpetrate the ocean/blue grabbing (Benjaminsen & Bryceson, 2012). In the blue economy, securitisation is connected to marine spatial planning that aims to reconcile the numerous competing interests in the ocean sectors (Josse et al., 2019). Yet, in practice, marine spatial planning is supported as a strategy to provide a stable maritime and coastal environment for blue economy industries (Flannery & Cinnéide, 2012). Second, the study augments other theoretical contributions by arguing that ocean/blue grabbing could be analytically positioned within the literature on primitive accumulation and accumulation by dispossession (Bavinck et al., 2017; Benjaminsen & Bryceson, 2012). Third, the study draws a

deeper connection between urban small-scale fishing and the phenomenon of growth-oriented accumulation in the ocean economy frontier. Despite the growing political ecology literature addressing the marginalisation of small-scale fisheries, there is still a paucity of case-based empirical research highlighting the specific exclusions of urban coastal fishing communities and their consequences. This study contributes to bridging this empirical gap by illuminating how urban small-scale fishing actors are entangled within the sociopolitical and structural processes of coastal transition in their geopolitical and socio-cultural contexts.

In conclusion, ports are vital for economic growth, yet their development, expansion, and operations can negatively affect access to crucial fishing resources and livelihoods, as demonstrated in this study of coastal fishing in Ghana. As coastal small-scale fishing actors lose their only source of livelihood in the face of securitisation and displacement, there is potential for resistance, which may lead to different forms of maritime conflict (Pomeroy et al., 2016; Spijkers et al., 2019). Therefore, the study recommends that Ghana's government address these exclusions to ensure that small-scale fishing actors are not marginalised by its adoption of the blue economy.

5.5.1 Ethics declarations

The Human Research Ethics Committee of the Authors Affiliations gave ethical approval for this study. Fieldwork procedures followed the required ethical guidelines, and all participants provided informed consent.

5.5.2 Data availability statement

Due to the research participants' confidentiality and privacy concerns, the datasets collected for this research may not be made publicly available except in limited circumstances.

5.5.3 Competing interest

The author declare no competing interests.

5.5.4 Funding

This research is supported by an Australian Government Research Training Program Scholarship as part of the first author's PhD, and by the Australian Research Council (DP180100965).

References

- Abhinav, K. A., Collu, M., Benjamins, S., Cai, H., Hughes, A., Jiang, B., ... & Zhou, B. Z. (2020). Offshore multi-purpose platforms for a Blue Growth: A technological, environmental and socio-economic review. *Science of the Total Environment*, 734, 138256. doi:10.1016/j.scitotenv.2020.138256. PMID:32470664.
- Ackah-Baidoo, A. (2013). Fishing in troubled waters: oil production, seaweed and community-level grievances in the Western Region of Ghana. *Community Development Journal*, 48(3), 406-420. doi:10.1093/cdj/bst022.
- Adjei, M., & Overå, R. (2019). Opposing discourses on the offshore coexistence of the petroleum industry and small-scale fisheries in Ghana. *The Extractive Industries and Society*, 6(1), 190-197. doi:10.1016/j.exis.2018.09.006.
- Adusah-Karikari, A. (2015). Black gold in Ghana: Changing livelihoods for women in communities affected by oil production. *The Extractive Industries and Society*, 2(1), 24-32. doi:10.1016/j.exis.2014.10.006.
- Afoakwa, R., Osei, M. B. D., & Effah, E. (2018). A guide on illegal fishing activities in Ghana. USAID/Ghana Sustainable Fisheries Management Project. Narragansett, RI: Coastal Resources Center, Graduate School of Oceanography, University of Rhode Island. Prepared by the University of Cape Coast, Ghana. GH2014_SCI048_UCC, 64.
- African Development Bank (2017, May 2022). Ghana - Takoradi Port Expansion Project: On Dock Container and Multipurpose Terminal - ESIA Summary. <https://www.afdb.org/en/documents/document/ghana-takoradi-port-expansion-project-on-dock-container-and-multipurpose-terminal-esia-summary-98135>
- Alamouh, A. S., Ballini, F., & Ölçer, A. I. (2021). Revisiting port sustainability as a foundation for the implementation of the United Nations Sustainable Development Goals (UN SDGs). *Journal of Shipping and Trade*, 6(1), 1-40. doi:10.1186/s41072-021-00101-6.
- Ameyaw, G. A., Tsamenyi, M., McIlgorm, A., & Aheto, D. W. (2021). Challenges in the management of small-scale marine fisheries conflicts in Ghana. *Ocean & Coastal Management*, 211, 105791. doi:10.1016/j.ocecoaman.2021.105791.
- Andrews, N. (2018). Land versus livelihoods: Community perspectives on dispossession and marginalisation in Ghana's mining sector. *Resources Policy*, 58, 240-249. doi:10.1016/j.resourpol.2018.05.011.
- Ankrah, J. (2018). Climate change impacts and coastal livelihoods; an analysis of fishers of coastal Winneba, Ghana. *Ocean and Coastal Management*, 161, 141-146. doi:10.1016/j.ocecoaman.2018.04.029.
- Atta-Mills, J., Alder, J., & Rashid Sumaila, U. (2004). The decline of a regional fishing nation: the case of Ghana and West Africa. In *Natural Resources Forum* (Vol. 28, No. 1, pp. 13-21). Oxford, UK: Blackwell Publishing Ltd.

- Ayilu, R. K., Fabinyi, M., & Barclay, K. (2022). Small-scale fisheries in the blue economy: Review of scholarly papers and multilateral documents. *Ocean and Coastal Management*, 216, 105982. <https://doi.org/10.1016/j.ocecoaman.2021.105982>.
- Ayilu, R. K., & Nyiawung, R. A. (2022). Illuminating informal cross-border trade in processed small pelagic fish in West Africa. *Maritime Studies*, 21(4), 519-532. <https://doi.org/10.1007/s40152-022-00284-z>
- Bailey, D., & Solomon, G. (2004). Pollution prevention at ports: clearing the air. *Environmental Impact Assessment Review*, 24(7-8), 749-774. doi:10.1016/j.eiar.2004.06.005.
- Bank of Ghana (2008). The Fishing Sub-Sector and Ghana's Economy. Retrieved from https://www.bog.gov.gh/wp-content/uploads/2019/07/fisheries_completerpdf.pdf
- Barbesgaard, M. (2018). Blue growth: Savior or ocean grabbing? *Journal of Peasant Studies* 45 (1): 130–49. doi:10.1080/03066150.2017.1377186.
- Barbesgaard, M. (2019). Ocean and land control-grabbing: The political economy of landscape transformation in Northern Tanintharyi, Myanmar. *Journal of Rural Studies*, 69:195–203. doi:10.1016/j.jrurstud.2019.01.014.
- Bassett, T. J., & Peimer, A. W. (2015). Dossier - Political ecological perspectives on socioecological relations. *Nature Sciences Sociétés* 23:157-65. doi:10.1051/nss/2015029.
- Bavinck, M., Berkes, F., Charles, A., Dias, A. C. E., Doubleday, N., Nayak, P., & Sowman, M. (2017). The impact of coastal grabbing on community conservation -a global reconnaissance. *Maritime Studies*, 16(1), 1-17. doi:10.1186/s40152-017-0062-8.
- Béné, C. (2003). When fishery rhymes with poverty: a first step beyond the old paradigm on poverty in small-scale fisheries. *World development*, 31(6), 949-975. [https://doi.org/10.1016/S0305-750X\(03\)00045-7](https://doi.org/10.1016/S0305-750X(03)00045-7)
- Benjaminsen, T. A., & Bryceson, I. (2012). Conservation, green/blue grabbing and accumulation by dispossession in Tanzania. *Journal of Peasant Studies*, 39(2), 335-355. <https://doi.org/10.1080/03066150.2012.667405>
- Bennett, E., & Bannerman, P. (2002). The Management of Conflict in Tropical Fisheries-Country Report (Ghana). In AGRIS. <https://agris.fao.org/agris-search/search.do?recordID=GB2012105692>
- Bennett, N. J. (2019). In political seas: Engaging with political ecology in the ocean and coastal environment. *Coastal Management* 47 (1): 67-87. doi:10.1080/08920753.2019.1540905.
- Bennett, N. J., Cisneros-Montemayor, A. M., Blythe, J., Silver, J. J., Singh, G., Andrews, N.,... & Sumaila, U. R. (2019). Towards a sustainable and equitable blue economy. *Nature Sustainability*, 2(11), 991-993. doi:10.1038/s41893-019-0404-1.
- Brent, Z., Barbesgaard, M., & Pedersen, C. (2018). The Blue Fix: Unmasking the politics behind the promise of blue growth. Retrieved from <http://hdl.handle.net/1765/113242>

- Britwum, A. O. (2009). The gendered dynamics of production relations in Ghanaian coastal fishing. *Feminist Africa*, 12 (2), pp. 69-85
- Bryant, R. L. (1992). Political ecology: an emerging research agenda in Third-World studies. *Political Geography*, 11(1), 12-36. [https://doi.org/10.1016/0962-6298\(92\)90017-N](https://doi.org/10.1016/0962-6298(92)90017-N)
- Burgess, M. G., Clemence, M., McDermott, G. R., Costello, C., & Gaines, S. D. (2018). Five rules for pragmatic blue growth. *Marine Policy*, 87, 331-339. doi:10.1016/j.marpol.2016.12.005
- Bush, S. R., & Marschke, M. (2016). Social and political ecology of fisheries and aquaculture in Southeast Asia. In *Routledge Handbook of the Environment in Southeast Asia* (pp. 242-256). Routledge.
- Business and Financial Times (2021, July 22). Nine pirate attacks recorded in 18 months. <https://thebftonline.com/2021/07/13/9-pirate-attacks-recorded-in-18-months/>
- Childs, J. R., & Hicks, C. C. (2019). Securing the blue: Political ecologies of the blue economy in Africa. *Journal of Political Ecology* 26 (1): 323-40. doi:10.2458/v26i1.23162.
- Citi Newsroom (2023, February 2). Accra Marine Drive Project officials engage Parliament. <https://citinewsroom.com/2023/02/accra-marine-drive-project-officials-engage-parliament/>
- Citi Newsroom (2021, April 16). AMA demolishes unauthorised structures at temporary 'fishing bay' in Jamestown. <https://citinewsroom.com/2021/07/ama-demolishes-unauthorised-structures-at-temporary-fishing-bay-in-jamestown/>
- Citi Newsroom (2021, July 6). President commissions special Offshore Security Vessels for Navy's protection of oil installation. <https://citinewsroom.com/2022/02/president-commissions-special-offshore-security-vessels-for-navys-protection-of-oil-installation/>
- Cohen, P. J., Allison, E. H., Andrew, N. L., Cinner, J., Evans, L. S., Fabinyi, M., ... & Ratner, B. D. (2019). Securing a just space for small-scale fisheries in the blue economy. *Frontiers in Marine Science*, 6, 171. doi:10.3389/fmars.2019.00171.
- Corson, C., MacDonald, K. I., & Neimark, B. (2013). Grabbing 'green': markets, environmental governance and the materialisation of natural capital. *Human Geography*, 6(1), 1-15. doi:10.1177/194277861300600101.
- Denchie, E. O., Ablo, A. D., & Overå, R. (2021). Land governance and access dynamics in Sekondi-Takoradi, Ghana. *African Geographical Review*, 40(4), 364-377. <https://doi.org/10.1080/19376812.2020.1831560>
- Dovlo, E., Amador, K., & Nkrumah, B. (2016). Report on the 2016 Ghana Marine Canoe Frame Survey. Ministry of Fisheries and Aquaculture Development, Fisheries Scientific Survey Division, Information Report No 36.

- Dredging Today (2018, May 29). Ghana, China Sign \$50 Million Jamestown Port Deal. <https://www.dredgingtoday.com/2018/04/09/ghana-china-sign-50-million-jamestown-port-deal/>
- Eikeset, A. M., Mazzarella, A. B., Davíðsdóttir, B., Klinger, D. H., Levin, S. A., Rovenskaya, E., & Stenseth, N. C. (2018). What is blue growth? The semantics of 'Sustainable Development' of marine environments. *Marine Policy*, 87, 177-179. doi:10.1016/j.marpol.2017.10.019
- Ertör, I., & Hadjimichael, M. (2020). Blue degrowth and the politics of the sea: Rethinking the blue economy. *Sustainability Science* 15 (1): 1–10. doi:10.1007/s11625-019-00772-y
- European Commission (2012, June 3). Blue Growth: Opportunities for Marine and Maritime Sustainable Growth. Brussels. https://ec.europa.eu/maritimeaffairs/content/blue-growth-opportunities-marine-and-maritime-sustainable-growth_en
- Fabinyi, M. (2020). The role of land tenure in livelihood transitions from fishing to tourism. *Maritime Studies* 19 (1): 29-39. doi:10.1007/s40152-019-00145-2
- Fabinyi, M., Belton, B., Dressler, W. H., Knudsen, M., Adhuri, D. S., Aziz, A. A., ... & Vandergeest, P. (2022). Coastal transitions: Small-scale fisheries, livelihoods, and maritime zone developments in Southeast Asia. *Journal of Rural Studies*, 91, 184-194. doi:10.1016/j.jrurstud.2022.02.006.
- Fairhead, J., Leach, M., & Scoones, I. (2012). Green grabbing: A new appropriation of nature? *Journal of Peasant Studies* 39 (2): 237-61. doi:10.1080/03066150.2012.671770.
- FAO (2021). Improving governance of tenure in fisheries sector in Ghana using the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests and small-scale fisheries guidelines. The cases of coastal fishing communities and Volta Clam fishery. Rome. <https://doi.org/10.4060/cb7845en>
- Flannery, W., & Cinnéide, M. Ó. (2012). A roadmap for marine spatial planning: A critical examination of the European Commission's guiding principles based on their application in the Clyde MSP Pilot Project. *Marine Policy*, 36(1), 265-271. <https://doi.org/10.1016/j.marpol.2011.06.003>
- Freduah, G., Fidelman, P., & Smith, T. F. (2017). The impacts of environmental and socio-economic stressors on small scale fisheries and livelihoods of fishers in Ghana. *Applied Geography*, 89, 1-11. doi:10.1016/j.apgeog.2017.09.009.
- Ghana Ports and Harbours Authority [GPHA] (2022, June 2). Ghana Ports handbook 2018-2019. <https://www.ghanaports.gov.gh/>
- Ghana Statistical Service (2021, April 12). Population and Housing Census Report. <https://statsghana.gov.gh>

- Graphic.com.gh (2020, June 8). AMA pulls down structures at Jamestown beach For Fishing harbour project. <https://www.graphic.com.gh/news/general-news/ama-pulls-down-structures-at-jamestown-beach-for-fishing-harbour-project.html>
- Green, K. E., & Adams. W. M. (2015). Green grabbing and the dynamics of local-level engagement with neoliberalization in Tanzania's wildlife management areas. *Journal of Peasant Studies* 42 (1): 97–117. doi:10.1080/03066150.2014.967686.
- Gyan, W. R., Alhassan, E. H., Asase, A., Akongyuure, D. N., & Qi-Hui, Y. (2020). Assessment of post-harvest fish losses: The case study of Albert Bosomtwi-Sam fishing harbour, Western Region, Ghana. *Marine Policy*, 120, 104120. doi:10.1016/j.marpol.2020.104120.
- Hall, C. M. (2006). Urban entrepreneurship, corporate interests and sports mega-events: The thin policies of competitiveness within the hard outcomes of neoliberalism. *Sociological Review* 54: 59-70. doi:10.1111/j.1467-954X.2006.00653.x.
- Hall, D. (2013). Primitive accumulation, accumulation by dispossession and the global land grab. *Third World Quarterly*, 34(9), 1582-1604. <https://doi.org/10.1080/01436597.2013.843854>
- Hall, D. (2012). Rethinking primitive accumulation: Theoretical tensions and rural Southeast Asian complexities. *Antipode* 44 (4): 1188-208. doi:10.1111/j.1467-8330.2011.00978.x.
- Hall, D., Hirsch, P., & Li, T. M. (2011). Powers of exclusion: land dilemmas in Southeast Asia. National University of Singapore (NUS). Singapore: Press.
- Harvey, D. (2003). Accumulation by dispossession. In *The new imperialism*. Oxford University Press. doi:10.1093/oso/9780199264315.003.0007.
- Harvey, D. (2008). 'The right to the city'. *New Left Review* 53:23-40.
- International Maritime Organisation [IMO] (2003). Code of practice on security in ports. Tripartite Meeting of Experts on Security, Safety and Health in Ports. Geneva. <https://wwwcdn.imo.org/localresources/en/OurWork/Security/Documents/ILOIMOCODEOfPracticeEnglish.pdf>
- International New Town Institute (2022, May 20). Tema Manhean. <http://www.newtowninstitute.org/spip.php?article1088>
- Jackson, I. (2019, May 12). Livelihoods and culture under threat in Ghana's historic port of Jamestown. Retrieved from <https://news.liverpool.ac.uk/2019/06/10/livelihoods-and-culture-under-threat-in-ghanas-historic-port-of-jamestown/>
- Jentoft, S., Chuenpagdee, R., Said, A. B., & Isaacs, M. (2022). Blue justice: Small-scale fisheries in a sustainable ocean economy. MARE Publication Series. vol. 26. MARE. doi:10.1007/978-3-030-89624-9.
- Josse, T., Hadiwinata, M., Pratama, H., Brent, Z. W., & Barbesgaard, M. (2019). Marine Spatial Planning: Resolving or entrenching conflicts. Transnational Institute, Amsterdam.

- Kadfak, A., & Oskarsson, P. (2020). An (Urban) political ecology approach to small-scale fisheries in the global south. *Geoforum* 108:237-45. doi:10.1016/j.geoforum.2019.11.008.
- Kalina, M. R., Mbereko, A., Maharaj, B., & Botes, A. (2019). Subsistence marine fishing in a neoliberal city: a political ecology analysis of securitisation and exclusion in Durban, South Africa. *Journal of Political Ecology*, 26(1), 363-380. doi:10.2458/v26i1.23008.
- Kansanga, M. M., Arku, G., & Luginaah, I. (2019). Powers of exclusion and counter-exclusion: The political ecology of ethno-territorial customary land boundary conflicts in Ghana. *Land use policy*, 86, 12-22. doi:10.1016/j.landusepol.2019.04.031.
- Kassah, J. E., & Asare, C. (2022). Conflicts in the Artisanal Fishing Industry of Ghana: Reactions of Fishers to Regulatory Measures. In *Blue Justice*, 99–118. Cham: Springer. doi:10.1007/978-3-030-89624-9_6.
- Knudsen, M. (2012). Fishing families and cosmopolitans in conflict over land on a Philippine island. *Journal of Southeast Asian Studies* 43 (3): 478-99. doi:10.1017/S0022463412000355.
- Lund, C. (2012). Fragmented sovereignty: land reform and dispossession in Laos. In *New Frontiers of Land Control*, 225-246. Routledge.
- Lund, C. (2013). The past and space: On arguments in African land control. *Africa: Journal of the International African Institute*, 83 (1): 14-35. doi:10.1017/S0001972012000691.
- Lund, C., & Boone, C. (2013). Introduction: Land politics in Africa-constituting authority over territory, property and persons. *Africa: Journal of the International African Institute*, 83 (1): 1-13. doi:10.1017/S000197201200068X.
- Maharaj, B. (2017). Contesting displacement and the struggle for survival: The case of subsistence fisher folk in Durban, South Africa. *Local Economy* 32 (7): 744-62. doi:10.1177/0269094217734330.
- Malkoc, B. N. (2020). *Rebuilding Precarity: Dwellings and Demolitions in Jamestown Harbor, Accra, Ghana* (Masters dissertation, University of Oregon). <https://scholarsbank.uoregon.edu/xmlui/handle/1794/26177>
- Massé, F., & Lunstrum, E. (2016). Accumulation by securitisation: Commercial poaching, neoliberal conservation, and the creation of new wildlife frontiers. *Geoforum* 69:227-37. doi:10.1016/j.geoforum.2015.03.005.
- McCormack, F., & Barclay, K. (2013). Insights on capitalism from Oceania. In *Engaging with capitalism: Cases from Oceania* (Vol. 33, pp. 1-27). Emerald Group Publishing Limited. doi.org/10.1108/S0190-1281(2013)0000033003
- Ministry of Fisheries and Aquaculture Development [MoFAD] (2015). *National Fisheries Management Plan*, Government of Ghana pp48.

- Morrissey, K. (2017). It's not just a Blue Economy moment.... *Dialogues in Human Geography* 7 (1): 42-44. doi:10.1177/2043820617691651.
- Myjoyonline.com (2022, July 6). Akufo-Addo commissions 4 ships for Navy. <https://www.myjoyonline.com/akufo-addo-commissions-4-ships-for-navy/>
- Nader, L. (1969). 'Up the Anthropologist: Perspectives Gained from studying up'. pp. 284–311 in D. Hymes (ed) *Reinventing Anthropology*. New York: Random House
- Nolan, C., Goodman, M., & Menga, F. (2020). In the shadows of power: the infrastructural violence of thermal power generation in Ghana's coastal commodity frontier. *Journal of Political Ecology*, 27(1), 775-794. doi:10.2458/v27i1.23571.
- Nunoo, F. K. E., Asiedu, B., Amador, K., Belhabib, D., Lam, V., Sumaila, R., & Pauly, D. (2014). Marine fisheries catches in Ghana: Historic reconstruction for 1950 to 2010 and current economic impacts. *Reviews in Fisheries Science & Aquaculture*, 22(4), 274-283. doi:10.1080/23308249.2014.962687.
- Nygren, A., & Rikoon, S. (2008). Political ecology revisited: Integration of politics and ecology does matter. *Society and Natural Resources* 21 (9): 767-82. doi:10.1080/08941920801961057.
- Okafor-Yarwood, I., Kadagi, N. I., Miranda, N. A., Uku, J., Elegbede, I. O., & Adewumi, I. J. (2020). The blue economy-cultural livelihood–ecosystem conservation triangle: the African experience. *Frontiers in Marine Science*, 586. doi:10.3389/fmars.2020.00586.
- Olukoju, A. (2020). African seaports and development in historical perspective. *International Journal of Maritime History* 32 (1): 185-200. doi:10.1177/0843871419886806.
- Overå, R. (2011). Modernisation narratives and small-scale fisheries in Ghana and Zambia. In *Forum for Development Studies*, vol. 38, no. 3, pp. 321-343. Routledge. <https://doi.org/10.1080/08039410.2011.596569>
- Overå, R., Atter, A., Amponsah, S., & Kjelleevold, M. (2022). Market women's skills, constraints, and agency in supplying affordable, safe, and high-quality fish in Ghana. *Maritime Studies*, 21(4), 485-500. <https://doi.org/10.1007/s40152-022-00279-w>
- Owusu, V., & Adjei, M. (2021). Politics, power and unequal access to fisheries subsidies among small-scale coastal fisherfolk in Ghana. *Ocean and Coastal Management* 214:105920. doi:10.1016/j.ocecoaman.2021.105920.
- Owusu, V. (2019). Impacts of the petroleum industry on the livelihoods of fisherfolk in Ghana: A case study of the Western Region. *Extractive Industries and Society* 6 (4): 1256-64. doi:10.1016/j.exis.2019.11.002.
- Peluso, N. L., & Lund, C. (2011). New frontiers of land control: Introduction. *Journal of Peasant Studies* 38 (4): 667-81. doi:10.1080/03066150.2011.607692.

- Pomeroy, R., Parks, J., Mrakovcich, K. L., & LaMonica, C. (2016). Drivers and impacts of fisheries scarcity, competition, and conflict on maritime security. *Marine Policy*, 67, 94-104. doi:10.1016/j.marpol.2016.01.005.
- Prudham, S. (2007). The fictions of autonomous invention: Accumulation by dispossession, commodification and life patents in Canada. *Antipode* 39 (3): 430-55. doi:10.1111/j.1467-8330.2007.00533.x.
- Quist, L. M., & Nygren, A. (2015). Contested claims over space and identity between fishers and the oil industry in Mexico. *Geoforum* 63:44-54. doi:10.1016/j.geoforum.2015.05.015.
- Roberts, W. C. (2020). What was primitive accumulation? Reconstructing the origin of a critical concept. *European Journal of Political Theory*, 19(4), 532-552. <https://doi.org/10.1177/1474885117735961>
- Sarpong, D. B., Quatey, S. N., & Harvey, S. K. (2005). The Economic and Social Contribution of Fisheries to Gross Domestic Product and Rural Development in Ghana. Food and Agriculture Organization of the United Nations. FAO.
- Satizábal, P., Dressler, W. H., Fabinyi, M., & Pido, M. D. (2020). Blue economy discourses and practices: reconfiguring ocean spaces in the Philippines. *Maritime Studies*, 19(2), 207-221. doi:10.1007/s40152-020-00168-0.
- Seisedos, M. R., & Carrasco, P. F. (2020). Port Projects in Blue Economy: Port of Motril-Granada. *Journal of Coastal Research*, 95(SI), 940-944. <https://doi.org/10.2112/SI95-183.1>
- Siakwah, P. (2018). Actors, networks, and globalised assemblages: Rethinking oil, the environment and conflict in Ghana. *Energy Research and Social Science* 38:68-76. doi:10.1016/j.erss.2018.01.021.
- Silver, J. J., Gray, N. J., Campbell, L. M., Fairbanks, L. W., & Gruby, R. L. (2015). Blue economy and competing discourses in international oceans governance. *The Journal of Environment and Development*, 24(2), 135-160. doi:10.1177/1070496515580797.
- Song, A. M. (2021). Civilian at Sea: Understanding Fisheries' Entanglement with Maritime Border Security. *Geopolitics*: 1-25. doi:10.1080/14650045.2021.1997995.
- Spijkers, J., Singh, G., Blasiak, R., Morrison, T. H., Le Billon, P., & Österblom, H. (2019). Global patterns of fisheries conflict: Forty years of data. *Global Environmental Change*, 57, 101921. doi:10.1016/j.gloenvcha.2019.05.005.
- Stanković, J. J., Marjanović, I., Papathanasiou, J., & Drezgić, S. (2021). Social, economic and environmental sustainability of port regions: Mcdm approach in composite index creation. *Journal of Marine Science and Engineering*, 9(1), 74. doi:10.3390/jmse9010074.
- Stop Illegal Fishing (2011, July 5). Ghana's navy receives four new patrol vessels. From <https://stopillegalfishing.com/press-links/ghanas-navy-receives-four-new-patrol-vessels/>

- The Ghana Report (2020, May 21). AMA Pulls Down Structures At Jamestown Beach For Fishing Harbour Project. <https://www.theghanareport.com/ama-pulls-down-structures-at-jamestown-beach-for-fishing-harbour-project/>
- Tsakiridis, A., Mateo-Mantecón, I., O'Connor, E., Hynes, S., & O'Donoghue, C. (2021). Efficiency benchmarking of Irish and North Atlantic Spanish ports: Implications for blue growth. *Utilities Policy*, 72, 101268. doi:10.1016/j.jup.2021.101268.
- VOA (2020, May 1). Fears for Livelihoods Over Fishing Harbor Demolition in Ghana. https://www.voanews.com/a/africa_fears-livelihoods-over-fishing-harbor-demolition-ghana/6190364.html
- West Africa Regional Fisheries Program (2011, July 5)). West Africa Regional Fisheries Program in Ghana (WARFPG) Resettlement Policy Framework. <https://documents1.worldbank.org/curated/pt/673861468031784870/pdf/RP11230v101pub1330B0AFR1RFP1P124775.pdf>
- Winder, G. M., & Le Heron, R. (2017). Assembling a Blue Economy moment? Geographic engagement with globalising biological-economic relations in multi-use marine environments. *Dialogues in Human Geography* 7 (1): 3-26. doi:10.1177/2043820617691643.
- World Bank (2021, May 18). Data for Lower middle income, Ghana. Retrieved from <https://data.worldbank.org/?locations=XN-GH>
- Wrigley-Asante, C., & Mensah, P. (2017). Men and women in trades: Changing trends of home-based enterprises in Ga-Mashie, Accra, Ghana. *International Development Planning Review* 39 (4): 423-42. doi:10.3828/idpr.2017.11.
- Yankson, P. W., Gough, K. V., Esson, J., & Amankwaa, E. F. (2017). Spatial and social transformations in a secondary city: the role of mobility in Sekondi-Takoradi, Ghana. *Danish Journal of Geography*, 117(2), 82-92. doi:10.1080/00167223.2017.1343672.
- Yin, R. K. (2013). Validity and generalisation in future case study evaluations. *Evaluation* 19 (3): 321-32. doi:10.1177/1356389013497081.
- Zhang, H., & Bateman, S. (2017). Fishing militia, the securitisation of fishery and the South China Sea dispute. *Contemporary Southeast Asia*: 288-314. <https://www.jstor.org/stable/44683771>

Chapter 6

Discussion and Conclusion

6.1 Introduction

This thesis contributes to understanding the relationship between small-scale fisheries and the blue economy in Ghana, with the different chapters investigating this relationship from varied perspectives. The first part of the thesis presented a global overview of the framing of small-scale fisheries in the blue economy (Chapter 2). The second part of the thesis examined small-scale fishing livelihoods based on different case studies (chapters 3, 4, and 5) of two blue economy sectors in Ghana. Chapters 3 and 4 examine industrial fishing interactions with small-scale fishing, and illustrate how Ghana's history of fisheries industrialisation has disrupted traditional fishing value chains, marginalised coastal fishing livelihoods and sparked conflict. Chapter 5 covers coastal developments (i.e. port development, activities, and operations) to discuss the difficulties small-scale fishers in port communities face in sustaining their traditional coastal fishing livelihoods in terms of access to the sea and places for landing catch.

Since the 2012 United Nations Conference on Sustainable Development, blue economy visions have rapidly accelerated, accompanied by significant economic and social concerns (Silver et al., 2015; Voyer et al., 2018). Research has shown few local economic advantages of the blue economy may exist in practice. Rising inequality among coastal resource-dependent populations displaces local communities and livelihoods, jeopardising ecological sustainability, and causing significant social and cultural harms that violate human rights (Isaacs, 2019). Academics and civil society activists have highlighted emerging risks for small-scale fisheries in the blue economy, with a set of counter-narratives promoting considerable attention to social equity and justice issues (Bennett et al., 2021; Cisneros-Montemayor et al., 2019; Isaacs, 2019; Jentoft et al., 2022). The thesis is situated within this body of literature, with blue justice as the foundation for this discussion.

In this chapter, I discussed the specific findings of the chapters concerning the economic, social, and political difficulties faced by of small-scale fishing actors in the blue economy, organised according to the following three overall findings:

1) *Dominant blue economy narratives downplay small-scale fisheries.* This section discusses the prevailing blue economy narrative that pays less attention to the importance of small-scale fisheries;

2) *Industrialisation in maritime fishing threatens coastal fishing livelihoods*. This section discusses the threat to the viability of coastal fishing livelihoods posed by industrialised maritime fishing in the blue economy;

3) *Local fishing communities are disadvantaged in coastal development*. This part discusses how the pursuit of economic growth through coastal development (i.e. ports) tends to exclude coastal populations, particularly coastal fishing communities, from the coastal land they need to conduct their operations.

6.2 Dominant blue economy narratives downplay small-scale fisheries

The blue economy has the potential to improve human well-being by creating a socially sustainable and equitable ocean economy that benefits resource-dependent coastal communities (Bennett et al., 2022). Its conceptualisation emphasises the economic dimension of the ocean sectors while also aiming to address environmental and social inclusion. This thesis began by examining the blue economy's dominant global discourses through a scoping analysis (see Chapter 2). The chapter established how small-scale fisheries are framed within dominant blue economy narratives from academics and multilateral institutions, which I concluded marginalises small-scale fisheries. In particular, I demonstrated how high-level strategic policy documents, geopolitical discussions and negotiations frame the concept to include proposals ideal for different ocean sectors but in ways that sideline small-scale fisheries.

Firstly, the dominant contemporary blue economy narrative provides insufficient recognition of small-scale fisheries, by failing to identify them as a high priority blue economy sector. Integrating ocean resources and spaces as frontiers to promote economic expansion in the blue economy highlights a greater emphasis on industrial economic growth and the political imperatives of dominant groups. The focus on marine spatial planning, as well as on financial and growth-oriented initiatives have gained precedence over critical non-economic dimensions of small-scale fisheries, including social relations, local accountability, collective action, identity and culture (Farmery et al., 2021). The dominant blue economy model pays less attention to these diverse characteristics of small-scale fisheries-characteristics that are actually conducive to achieving some of the stated goals of many blue economy narratives, including resource sustainability, community social well-being, and climate-friendly food systems.

Reflecting this disconnect, while blue economy proponents argue for social and economic inclusion of all sectors, underlying these arguments are naïve assumptions that do not adequately

reflect the socio-cultural aspects of small-scale fisheries and politically disadvantage them. For example, the social and well-being dimensions of the blue economy are anticipated to be realised through expanding total production (e.g. Gross Domestic Product [GDP]) in ocean industries. In addition, small-scale fisheries are integrated into the blue economy on terms imposed by multilateral bodies, big enterprises, and commercial and political considerations. The blue economy is therefore more growth-focused than the basis for a functional social system, well-being, inclusion and human rights for everyone in coastal communities (Cisneros-Montemayor et al., 2019). Many international or multilateral blue economy policy documents pay little attention to social considerations beyond the mention of aggregate economic benefits or jobs (Ayilu et al., 2022; Bennett et al., 2022). For example, in the blue economy discussion of aquatic food and livelihoods, industrial fisheries and aquaculture are emphasised over small-scale fisheries (Ayilu et al., 2022). The emerging blue economy arguably contrasts with its initial framing in the 2012 United Nations Conference on Sustainable Development, where small-scale fisheries voices were prominent (Voyer et al. 2021). Therefore, I argue that economic and political discourse and powerful commercial voices have altered the trajectory of the blue economy's narrative from its initial focus.

6.3 Industrialisation in maritime fishing threatens coastal fishing livelihoods

In contrast to the rhetoric about innovation, in practice the blue economy for maritime fishing is largely about expansion and innovation in industrial fishing and aquaculture and not about small-scale fisheries. Yet, few empirical cases provide practical examples of how maritime industrial fishing aspirations of the blue economy may exclude, disrupt and negatively impact local small-scale fisheries. In chapters 3 and 4, the thesis addressed how the expansion of industrial fishing emerged in the blue economy, and how it shapes the livelihoods of small-scale fishers in Ghana. Collectively, chapters 3 and 4 present a comprehensive analysis of the industrialisation of maritime fisheries, and how this subsequently threatens and undermines local coastal fishing livelihoods in practice.

In chapter 3, the thesis demonstrates from a critical political ecology viewpoint how industrial fishers exploit coastal fishing grounds in Ghana and eventually exclude coastal small-scale fishers from the maritime fishing sector. The study demonstrates how contradictory regulations, ambiguous boundaries, and various 'bundles of power', such as regulation, legitimisation, force, and the market (Hall et al., 2011), enable industrial fisheries to access local coastal fisheries and

penetrate local small-scale value chains. In addition, the chapter illustrates how foreign aid legitimises the expansion of foreign fishing. In Ghana, the country's aid diplomacy with China has resulted in Chinese industrial vessels with their local business partners capturing fishery resources, leaving local fishers struggling. While small-scale fisheries stakeholders in Ghana are dissatisfied with these active violations of the fisheries laws, the central government is unable to enforce the laws to protect local fishers' livelihoods. These unequal power dynamics and commercial and political considerations are likely to drive marine resource exploitation in the blue economy in developing nations of the Global South.

In chapter 4, the study integrates the sustainable livelihoods approach with political ecology to show how Ghana's maritime fishing industrialisation trajectory impacts the various livelihood assets of small-scale fishers. Since Ghana's independence in 1957, industrialisation-led growth initiatives have promoted large-scale industrial fishing, facilitated foreign investment and advanced gear technology (Acquay, 1992; Bennett & Bannerman, 2002; Overå, 2011). I show how industrialised fishing has resulted in overcapacity and declining fish stocks, and subsequently threatened the viability of small-scale fisheries in Ghana's coastal communities. Capital-intensive fishing has depleted the local fishery resources and damaged fishing gear, compromised market systems and value chain positions of processors and traders, directly affecting fishing livelihoods. In addition, multiple dimensions of fishers' livelihoods, including associated social and cultural networks and traditions, are being eroded, threatening the sustainability of local coastal communities.

As innovation and globalisation accelerates blue transformation (Jouffray et al., 2020), research is crucial to understanding the social, economic, and ecological effects on coastal fishing livelihoods. In many regions of the world, the growing focus on the blue economy is propelling industrial and large-scale fisheries and aquaculture, and downplaying the potential of small-scale fisheries. This shift has implications for who has access to, use of, and control of maritime fisheries (Bennett, 2019). Blue economy initiatives are putting pressure on poorer coastal communities, particularly small-scale fisheries - similar to related forms of maritime transition described as 'contagious resource exploitation' (Eriksson et al., 2015, p.435), a 'tragedy of the commodity' (Longo & Clausen, 2011, p.316), and profit-driven 'roving banditry' (Berkes et al., 2006, p.1557). In many respects, the expansion of commodity frontier production (Havice & Campling, 2021), including industrial fishing, seems inevitable in many blue economy transitions

(Ayilu et al., 2022; Hicks & Childs, 2019). Small-scale fishers are increasingly disadvantaged as the 'fisheries commodity frontier' closes (Nolan, 2019, p.2) and competition for control of these marine resources escalates.

Overall, I argue that the blue economy for maritime fisheries entails innovation, modernisation and industrialisation for most countries and stakeholders (see Ayilu et al., 2022; Cohen et al., 2019; Fabinyi et al., 2021). I emphasise that this model favours industrial fishing at the expense of small-scale fisheries, highlighting the potential conflicts resulting from industrial players outcompeting and disadvantaging small-scale actors.

6.4 Local fishing communities disadvantaged in coastal development

In chapter 5, I provided an account of small-scale fishers in Ghana's port communities to unpack how coastal development transforms coastal fishing livelihoods. In recent decades, seaports have experienced enormous growth, making them important drivers of economic growth in most countries. The chapter characterises coastal development in Ghana based on two case studies: 1) transitions and changes in the existing Tema and Sekondi/Takoradi ports; and 2) a contested urban port project development in Jamestown. In the fisheries literature, particularly in the context of the blue economy developments, coastal port transformation is under-theorised (Kadfak & Oskarsson, 2020). Using a political ecology theoretical lens, this chapter explains how such multidimensional coastal transformations affect the material and social aspects of local coastal fishing livelihoods.

In the case of port transitions and changes in existing ports, I show that the securitisation of port areas has restricted coastal fishing communities' access to ocean space and fishing resources. In addition, the urbanisation of fishing communities as a result of the port developments has resulted in increased food and housing costs, making it difficult for households dependent on small-scale fishing to maintain a decent standard of living. The fishing settlements are crowded into densely populated neighbourhoods that lack basic infrastructure such as clean water, good drainage, and roads.

In the case of a new mega port development (the James Town Fishing Harbour Complex), I show how the government, through local authorities, declared local fishers as illegal squatters, repeatedly evicted them and demolished structures belonging to them. The coastal fishing operators have been deprived of their assets and means of livelihood as the coastal land is

reclaimed for the project. Their economic and political rights to the traditional coastal territory have been declared illegitimate. Influential individuals, including Ghanaian elites and their Chinese counterparts who operate major industrial fishing firms, may potentially profit more from the modernised James Town Fishing Harbour Complex.

As a dominant political and hegemonic economic paradigm, the blue economy shapes ocean and maritime economic development policies at global, regional and national levels (Barbesgaard, 2018). It is significant to note that while the blue economy rhetoric emphasises the need to balance opposing interests in marine resources and spaces, in practice it raises concerns over the implications of neoliberal economic expansions. As demonstrated for Ghana's urban and peri-urban coastal fishing livelihoods, maritime port developments driven by neoliberal imperatives have entangled traditional coastal fishing livelihoods into complex social and material processes, such as exclusion, land contestation, loss of income, and disruption of culture and traditions. The growth and expansion of the port economy in a wholesale approach without regard to the local coastal economy has constrained the scope and trajectory of fishing livelihoods in nearby communities.

Ghana is initiating steps to increase economic growth through international trade, become West Africa's oil and gas industrial centre, and industrialise the country's coastal fishing. In addition, a new coastal development authority (CODA) has been established (Act, 2017) to spearhead coastal development. The development of growth-oriented infrastructure, the commodification of coastal lands, and the growing shifts to private investment, including public-private partnerships in Ghana's blue economy, fit into the pattern of neoliberal urbanism (Jaffee, 2019). Neoliberal (re)structuring strategies, as observed in the case of Ghana's ports, directly interact with the pre-existing uses of the ocean and maritime space and established institutions, displacing existing traditional coastal fishing livelihoods.

In conclusion, the neoliberal approach of the blue economy has shifted states and state institutional approach from being 'managerial' to being 'entrepreneurial' - that is, from regulation, redistribution, and service provision to designing market-oriented policies to attract, facilitate, and subsidise capital investment and accumulation (Jaffee, 2019). I argue that state coastal development policies should regulate and redistribute resources so as to reduce social and economic inequality, as opposed to solely boosting capital expansion that may reinforce unequal accumulation.

6.5 Summary conclusion

This thesis explored some of the pathways through which the blue economy interacts with local coastal fisheries, and the subsequent impacts. This research began with a review to better understand the blue economy in a global context, particularly for small-scale fisheries (Chapter 2). This fed into examining the relationship between industrial and small-scale maritime fishing in Ghana (Chapters 3 and 4). It then progressed to investigate the interaction of small-scale fishing livelihoods with major coastal developments (i.e. ports) in Ghana (Chapter 5). As small-scale fishing remains one of the most important livelihood occupations in coastal communities in the global South, whether the blue economy discourse, development and actions would yield significant benefits for them remains an open question (Barbesgaard, 2018).

Gaining theoretical and empirical knowledge of this topic is increasingly crucial to understanding the future of small-scale fishing. The social, economic and political struggles of small-scale fishers have intensified with the emergence of the blue economy (Bavinck et al. 2018; Cohen et al. 2019; Jentoft et al. 2022). Therefore, combining insights from sectoral perspectives, livelihoods, and critical political ecology, each of the empirical studies in this thesis analyses how the blue economy interacts with coastal fishing livelihoods. The thesis provides a comprehensive analysis of how small-scale fisheries relate to, compete with and operate within selected blue economy sectors in Ghana.

In conclusion, Ghana's blue economy and maritime/ocean development may not be inclusive enough, and does not consider the context in which coastal fisheries have occurred and continue to operate. I conclude that to understand the actual effects of the maritime transformations associated with the blue economy, governments must explore the interactions of specific developments and coastal livelihoods, as opposed to examining their effects on the economy through total production (i.e. GDP). While growth in the national economy, employment and capital are directly tied to economic well-being, they are not equivalent.

Moreover, as many in small-scale fishing value chains struggle to make a living due to industrial transformation and development, the current scenarios have severe repercussions for the future of established fishing communities. Further, it is uncertain whether the small-scale fishing industry will continue to attract fishers as a vocation, given that those engaged in the value chain are 'getting by' through seeking alternate livelihoods. The future of small-scale fishing livelihoods in Ghana is unclear.

6.6 Contributions and recommendations

6.6.1 Theoretical contributions

In addition to answering the research questions on how the blue economy unfolds in practice and the impacts and outcomes on small-scale fisheries livelihoods, the study also contributes to ongoing wider theoretical debates.

Among the range of tensions and contested interests in the blue economy (Harris et al. 2018), this study has highlighted how small-scale fisheries are also increasingly in conflict with the securitisation of blue economy developments (Bueger, 2015; Childs & Hicks, 2019; Menzel, 2022; see also Song, 2021). In practice, this is linked to the idea of marine spatial planning. In the academic literature, marine spatial planning has been considered as one method to reconcile the multiple competing interests in the blue economy (Josse et al., 2019; Hadjimitsis et al., 2015), and in the majority of multilateral documents, marine spatial planning is advocated as a tool to secure a stable maritime and coastal environment for blue economy enterprises (Flannery & Cinnéide, 2012). Across the board, maritime and coastal zoning, allocations, and securitisation are advocated as the main instruments for marine spatial planning in the blue economy with little attention paid to issues of power and inequality (Flannery et al., 2019; Flannery & Cinnéide, 2012; Said & Trouillet, 2020).

Securitisation of maritime and coastal spaces has consequently become an increasingly prominent governance activity in the blue economy, needing further examination. This study contributes to this direction by arguing from a critical political ecology perspective that marine spatial planning tools (i.e., zoning, allocations, and securitisation) are crucial non-economic mechanisms of accumulation that could facilitate neoliberal capitalism. The study theorises that marine spatial planning tools in the blue economy are a form of primitive accumulation, albeit a less obvious depiction of neoliberal expansion. The study concluded that securitisation is an important process that needs to be taken into account more often when examining the blue economy.

A second contribution of the thesis has been to challenge existing theoretical notions prevalent in the conflict literature regarding maritime fishing. Scholars have depicted commercialisation and industrialisation in fisheries as the drivers of global fisheries scarcity, and as a source of conflict between fishers within and across fishing sectors (Mansfield, 2010). Some scholars also argue that conflict is inevitable, as industrial fisheries continue to compete for limited small-scale fishing resources leading to local resistance (Ameyaw et al., 2017; DuBois & Zografos, 2012;

Pomeroy et al., 2016). In contrast, the thesis argues that while the scarcity-conflict literature of maritime fisheries competition is one crucial mechanism of fisheries conflict, it does not entirely explain the situation in the blue economy. In chapter 3, I showed how the interactions between industrial and small-scale fishers in the blue economy are more about active exclusion than conflict over scarce fisheries resources. I argue that conflict is both a tool and a symptom of exclusion in the blue economy because of its connection to additional dimensions of exclusion, such as law, politics, and social and economic organisation.

Finally, the study argues that the centralisation of the blue economy should focus on society's long-term existence and survival rather than total production (i.e. GDP). Growth measured by total production downplays the social and cultural function of coastal communities. Some scholars have argued for a shift from blue economy to blue communities, a notion that prioritises social and environmental considerations alongside economic growth (Campbell et al., 2021). Others have recommended a return to the original promise of the blue economy, which notably emphasised the livelihoods of small-scale fisheries in earlier conceptual framings (Silver et al., 2015; Voyer et al. 2021). There are also arguments for greater equity and justice to be addressed in the blue economy (Bennett et al., 2018; Bennett et al., 2019; Bennett et al., 2022; Cisneros-Montemayor et al., 2019). This study argues that the social, equity, and justice discussions should not just focus on small-scale fisheries but also on specific aspects within small-scale fisheries themselves that require further attention, such as gender relations, and greater participation of women. This is particularly important for thinking about governance and what social, equitable, and justice issues should be considered at the societal level. Individual representatives within a fishing community may share a common identity but also have distinct identities that may conflict with those of other groups. I conclude that the blue economy should be more generally oriented towards society as opposed to economic growth, address concerns of equity and justice, and go a step further to recognise the various identities of fishing communities.

6.6.2 Empirical contributions

The study contributes empirically by providing a practical understanding of West African blue economy aspirations, and the interactions between the blue economy and small-scale fisheries in Ghana's specific context. West Africa is empirically significant on a global scale because the Economic Community of West African States (ECOWAS) has designed a Blue Economy strategy at the regional level with a framework for member countries to integrate the blue economy into ongoing national development agendas. The regional blue economy strategy

includes Integrated Coastal Management (ICM), with an emphasis on innovation, maritime security and public-private partnerships (Interregional Maritime Security Institute [ISMI], 2021). These specific contextual dynamics make Ghana an interesting empirical contribution.

Within West Africa, Ghana has been at the centre of multiple forms of bilateral and multilateral development cooperation. For instance, through fisheries agreements, Western nations (EU) and more recently China have been actively involved in Ghana's coastal development and industrial fishing. Existing academic and policy discussions on the blue economy have downplayed the geopolitical underpinnings of many blue economy developments (Fabinyi et al., 2021). The study demonstrates that the geopolitical influence of large powerful countries on developing countries' economic growth and development strategies provides an additional dimension of the blue economy. As demonstrated in chapter 3, given Ghana's reliance on foreign aid and development assistance, the country may be unable to guarantee a sustainable and equitable blue economy that safeguards local coastal livelihoods. In addition, Ghana, a country with strong colonial connections to the United Kingdom, often embraces western development and 'buzzword' governance concepts without considering the country's socioeconomic context. The blue economy is one such buzzword, and the country's top political leaders have become leading advocates at global and regional levels. This thesis shows that Ghana's approach to marine fishing in the blue economy, like that of many other West African nations (Okafor-Yarwood et al., 2020), may be less inclusive and may not account for coastal fishing livelihoods.

6.6.3 Recommendations

The study identifies a range of implications for small-scale fisheries and puts forward the following practical recommendations.

6.6.3.1 Global level

1. In their strategic policy documents, multilateral bodies such as the EU, OECD, World Bank, FAO including the AU etc., regional maritime governing bodies and regional development banks should explicitly identify small-scale fisheries as a distinct blue economy sector, and prioritise them. This approach would assist in legitimising small-scale fisheries in the blue economy and provide a starting point for considering how to protect, govern, and expand them as a vital sector of the blue economy.
2. Governmental ministries responsible for fisheries management should distinguish small-scale fisheries in fishing developments, refrain from portraying maritime fishing as one

industry, and protect small-scale fisheries to supply a more sustainable and climate-friendly food system. Small-scale fisheries are considered one of the world's most climate-efficient forms of animal protein production, with less fossil fuel generation and less impact on ocean biodiversity than industrial fishing (Parker & Tyedmers, 2014).

3. Global platforms for small-scale fisheries (e.g. World Forum of Fisher People [WFFP], World Forum of Fish Harvesters & Fish Workers [WFF]), practitioners, activists, and researchers should ensure a much greater representation in global forums such as the United Nations Ocean Conference, United Nations Conference on Sustainable Development, the Conference of Ministers of Fisheries of the FAO and business leaders meetings such as the World Economic Forum, to counter and contest the dominant blue economy narratives of economic growth, and legitimise the livelihoods of small-scale fishers.
4. An international legal, regulatory, and institutional framework that includes a covenant for small-scale fisheries is required for the blue economy, in line with the demands of diverse ocean people globally (International Union for Conservation of Nature [IUCN], 2022). Such arrangements comparable to the International Maritime Organization (IMO) and United Nations Convention on the Law of the Sea (UNCLOS) will assist in coordinating the blue economy at the international and regional levels under well-defined and established guidelines.

6.6.3.2 National level in Ghana

The evidence of this study is comparable to those of other West African nations in terms of maritime fishing concerns for small-scale fisheries (see Daniels et al., 2016; Mallory, 2013) and coastal port development exclusions (see Okafor-Yarwood et al., 2020). Thus, following FAO's voluntary guidelines for securing sustainable small-scale fisheries (Food and Agriculture Organization [FAO], 2015), the study makes the following recommendations for national governmental agencies and small-scale fisheries themselves. These recommendations specifically support the guidelines on responsible tenure governance (recommendations 1 and 2) and the guidelines on achieving policy coherence, institutional coordination, and collaboration (recommendation 4):

1. The Fisheries Commission of Ghana and the Fisheries Enforcement Unit (FEU) of the Ministry of Fisheries and Aquaculture should strictly enforce the national spatial

regulation on fishing (Fisheries regulations, 2010, L.I. 1968). This should include implementing the proposal by small-scale fishers for the extension of the Inshore Exclusive Zone to at least 12 nautical miles.

2. The Ghana Ports and Harbour Authority (GPHA), the Coastal Development Authority (CODA), and Municipal, Metropolitan, and District Assemblies in the coastal part of Ghana should endeavour to incorporate coastal communities and safeguard the tenure rights and livelihoods of small-scale fishers in coastal development (e.g. port).
3. The Fisheries Commission of Ghana should take steps in line with the recommendation of the Ghana Fisheries Management Plan (2015-2019) to reduce the number and capacity of industrial vessels to reduce their impact on small-scale fisheries.
4. The Ghanaian government must demonstrate strong political commitment in bilateral aid and development assistance arrangements with international partners. Notably, in fisheries access agreements/investments with foreign interests, the national interest should be accorded the highest priority, including food security, nutrition, and livelihoods.

6.6.3.3 Recommendations for fishers on how they might endeavour to respond

1. Fishers and traders should mobilise through the Ghana National Canoe Fishermen Council (GNCFC) and the National Association of Fish Processors and Traders (NAFPT), and exercise their collective political agency through the judicial legal system to demand the protection of their fundamental human rights to livelihood, culture, and identity. In line with this recommendation, environmental NGOs and civil society should support fishers to seek legal remedies with capacity building and legal assistance to collect the necessary evidence of marginalisation, injustice, and human rights abuses and legal violations.
2. Fishers and traders groups should also develop strong economic alliances, such as cooperatives and trade unions, to make them effective negotiators on maritime matters with the government.

6.7 Implications for further research

This study focuses heavily on marine and coastal waters. However, it is increasingly acknowledged that users of the relevance of freshwater fisheries and other water sources (e.g.

groundwater), such as small-scale fisheries also contend with comparable incursions and economic interest from blue economy initiatives. While this is beyond the scope of this thesis's core focus, Ghana does provide a unique opportunity to research blue economy imperatives for small-scale fisheries in inland/freshwater spaces. As an entry point for further work in freshwater contexts, future research may employ some of this study's insights and findings to focus on freshwater. Specifically, in Ghana, much of the human rights literature on small-scale fisheries in the Volta Lake Basin (e.g. Béné & Friend, 2011; Béné & Friend, 2009; Funge-Smith & Bennett, 2019) finds synergies with the struggles of small-scale coastal fisheries documented in this study. Much of the literature is related to power inequities, market accumulation, land ownership, political and geographical marginalisation, and child abuse (Béné & Friend, 2009), thus suggesting fruitful grounds for further research.

While the blue economy discourse is prominent globally, its intensity is more or less advanced in different regions and countries. Therefore, future research might compare similar fisheries (either coastal or freshwater) in different nations and regions to provide a comparative perspective on the blue economy imperatives for small-scale fisheries. Many nations in Africa, Asia, the Pacific, and Latin America are appropriate grounds for comparative research since they differ from Ghana regarding social, political, and economic development and governance.

Reference

- Acquay, H. K. (1992). Implications of structural adjustment for Ghana's marine fisheries policy. *Fisheries Research*, 14(1), 59-70. [https://doi.org/10.1016/0165-7836\(92\)90073-3](https://doi.org/10.1016/0165-7836(92)90073-3)
- Ameyaw, G. A., Tsamenyi, M., McIlgorm, A., & Aheto, D. W. (2021). Challenges in the management of small-scale marine fisheries conflicts in Ghana. *Ocean & Coastal Management*, 211, 105791. <https://doi.org/10.1016/j.ocecoaman.2021.105791>
- Ayilu, R. K., Fabinyi, M., & Barclay, K. (2022). Small-scale fisheries in the blue economy: Review of scholarly papers and multilateral documents. *Ocean & Coastal Management*, 216, 105982.
- Barbesgaard, M. (2018). Blue growth: savior or ocean grabbing?. *The Journal of Peasant Studies*, 45(1), 130-149. <https://doi.org/10.1080/03066150.2017.1377186>
- Bavinck, M., Jentoft, S., & Scholtens, J. (2018). Fisheries as social struggle: a reinvigorated social science research agenda. *Marine Policy*, 94, 46-52. <https://doi.org/10.1016/j.marpol.2018.04.026>
- Béné, C., & Friend, R. M. (2011). Poverty in small-scale fisheries: old issues, new analysis. *Progress in Development Studies*, 11(2), 119-144.
- Béné, C., & Friend, R. M. (2009). Water, poverty and inland fisheries: lessons from Africa and Asia. *Water International*, 34(1), 47-61.
- Bennett, E., & Bannerman, P. (2002). The Management of Conflict in Tropical Fisheries-Country Report (Ghana). In AGRIS. <https://agris.fao.org/agris-search/search.do?recordID=GB2012105692>
- Bennett, N. J. (2018). Navigating a just and inclusive path towards sustainable oceans. *Marine Policy*, 97, 139-146. <https://doi.org/10.1016/j.marpol.2018.06.001>
- Bennett, N. J. (2019). In political seas: engaging with political ecology in the ocean and coastal environment. *Coastal Management*, 47(1), 67-87. <https://doi.org/10.1080/08920753.2019.1540905>
- Bennett, N. J., Blythe, J., White, C. S., & Campero, C. (2021). Blue growth and blue justice: Ten risks and solutions for the ocean economy. *Marine Policy*, 125, 104387.
- Bennett, N. J., Cisneros-Montemayor, A. M., Blythe, J., Silver, J. J., Singh, G., Andrews, N. ... & Sumaila, U. R. (2019). Towards a sustainable and equitable blue economy. *Nature Sustainability*, 2(11), 991-993. <https://doi.org/10.1016/j.oneear.2022.08.004>
- Bennett, N. J., Villasante, S., Espinosa-Romero, M. J., Lopes, P. F., Selim, S. A., & Allison, E. H. (2022). Social sustainability and equity in the blue economy. *One Earth*, 5(9), 964-968. <https://doi.org/10.1016/j.oneear.2022.08.004>

- Berkes, F., Hughes, T. P., Steneck, R. S., Wilson, J. A., Bellwood, D. R., Crona, B., ... & Worm, B. (2006). Globalisation, roving bandits, and marine resources. *Science*, *311*(5767), 1557-1558. DOI: 10.1126/science.1122804
- Bueger, C. (2015). What is maritime security?. *Marine Policy*, *53*, 159-164. <https://doi.org/10.1016/j.marpol.2014.12.005>
- Campbell, L. M., Fairbanks, L., Murray, G., Stoll, J. S., D'Anna, L., & Bingham, J. (2021). From Blue Economy to Blue Communities: reorienting aquaculture expansion for community wellbeing. *Marine Policy*, *124*, 104361. <https://doi.org/10.1016/j.marpol.2020.104361>
- Childs, J. R., & Hicks, C. C. (2019). Securing the blue: political ecologies of the blue economy in Africa. *Journal of Political Ecology*, *26*(1), 323-340. <https://doi.org/10.2458/v26i1.23162>
- Cisneros-Montemayor, A. M., Croft, F., Issifu, I., Swartz, W., & Voyer, M. (2022). A primer on the 'blue economy': Promise, pitfalls, and pathways. *One Earth*, *5*(9), 982-986.
- Cisneros-Montemayor, A. M., Moreno-Báez, M., Voyer, M., Allison, E. H., Cheung, W. W., Helsing-Lewis, M. ... & Ota, Y. (2019). Social equity and benefits as the nexus of a transformative Blue Economy: A sectoral review of implications. *Marine Policy*, *109*, 103702.
- Cohen, P. J., Allison, E. H., Andrew, N. L., Cinner, J., Evans, L. S., Fabinyi, M., ... & Ratner, B. D. (2019). Securing a just space for small-scale fisheries in the blue economy. *Frontiers in Marine Science*, *6*, 171. <https://doi.org/10.3389/fmars.2019.00171>
- Daniels, A., Gutiérrez, M., Fanjul, G., Guereña, A., Matheson, I., & Watkins, K. (2016). Western Africa's Missing Fish: The impact of illegal, unreported and unregulated fishing and under-reporting catches by foreign fleets. *Overseas Development Institute*. London. <https://digitalcommons.fiu.edu/cgi/viewcontent.cgi?article=2006&context=srhreports>
- DuBois, C., & Zografos, C. (2012). Conflicts at sea between artisanal and industrial fishers: Inter-sectoral interactions and dispute resolution in Senegal. *Marine Policy*, *36*(6), 1211-1220. <https://doi.org/10.1016/j.marpol.2012.03.007>
- Eriksson, H., Österblom, H., Crona, B., Troell, M., Andrew, N., Wilen, J., & Folke, C. (2015). Contagious exploitation of marine resources. *Frontiers in Ecology and the Environment*, *13*(8), 435-440. <https://doi.org/10.1890/140312>
- Fabinyi, M., Wu, A., Lau, S., Mallory, T., Barclay, K., Walsh, K., & Dressler, W. (2021). China's blue economy: a state project of modernisation. *The Journal of Environment & Development*, *30*(2), 127-148. <https://doi.org/10.1177/107049652199>
- FAO (2015). Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication. *Food and Agriculture Organization of the United Nation*. Rome. <https://www.fao.org/3/i4356en/i4356en.pdf>
- Farmery, A. K., Allison, E. H., Andrew, N. L., Troell, M., Voyer, M., Campbell, B. ... & Steenbergen, D. (2021). Blind spots in visions of a 'blue economy' could undermine the

ocean's contribution to eliminating hunger and malnutrition. *One Earth*, 4(1), 28-38.
<https://doi.org/10.1016/j.oneear.2020.12.002>

Flannery, W., Clarke, J., & McAteer, B. (2019). Politics and power in marine spatial planning. In *Maritime spatial planning* (pp. 201-217). Palgrave Macmillan, Cham.

Flannery, W., & Cinnéide, M. Ó. (2012). A roadmap for marine spatial planning: A critical examination of the European Commission's guiding principles based on their application in the Clyde MSP Pilot Project. *Marine Policy*, 36(1), 265-271.
<https://doi.org/10.1016/j.marpol.2011.06.003>

Flannery, W., Healy, N., & Luna, M. (2018). Exclusion and non-participation in Marine Spatial Planning. *Marine Policy*, 88, 32-40. <https://doi.org/10.1016/j.marpol.2017.11.001>

Funge-Smith, S., & Bennett, A. (2019). A fresh look at inland fisheries and their role in food security and livelihoods. *Fish and Fisheries*, 20(6), 1176-1195.
<https://doi.org/10.1111/faf.12403>

Hadjimitsis, D. G., Agapiou, A., Themistocleous, K., Mettas, C., Evagorou, E., Papoutsas, C., ... & Lyssandrou, V. (2015). Resolving sea and land conflicts in Cyprus using marine spatial planning. In *Proceedings of the 14th international conference on environmental science and technology CEST* (Vol. 2015).

Hall, D., Hirsch, P., & Li, T. M. (2011). Introduction to powers of exclusion: land dilemmas in Southeast Asia. National University of Singapore Press.

Harris, L. R., Nel, R., Oosthuizen, H., Meyer, M., Kotze, D., Anders, D., ... & Bachoo, S. (2018). Managing conflicts between economic activities and threatened migratory marine species toward creating a multiobjective blue economy. *Conservation Biology*, 32(2), 411-423.

Havice, E., & Campling, L. (2021). Industrial fisheries and oceanic accumulation. In *Handbook of Critical Agrarian Studies*. Edward Elgar Publishing

International Union for Conservation of Nature (IUCN) (2022, June 24). Call for a Conference of the Ocean Peoples (C-OP): Reclaiming our oceans, reimagining our future.
<https://www.iucn.org/story/202206/call-conference-ocean-peoples-c-op-reclaiming-our-oceans-reimagining-our-future>

Interregional Maritime Security Institute [ISMI] (2021, October 4). Training seminar on the formulation of a blue economy strategy within ECOWAS states. <http://ismi-ci.org/training-seminar-on-the-formulation-of-a-blue-economy-strategy-within-ecowas-states-october-04-to-08-2021/?lang=en>

Isaacs, M. (2019, November 29). Is the Blue Justice concept a human rights agenda?.
<https://www.africaportal.org/publications/blue-justice-concept-human-rights-agenda/>

Jaffee, D. (2019). Neoliberal urbanism as 'Strategic Coupling' to global chains: Port infrastructure and the role of economic impact studies. *Environment and Planning C: Politics and Space*, 37(1), 119-136. <https://doi.org/10.1177/2399654418771134>

- Jentoft, S., C. Ratana, B. S. Alicia, and I. Moenieba. 2022. 'Blue justice: Small-scale fisheries in a sustainable ocean economy.' MARE Publication Series. vol. 26. MARE. doi:10.1007/978-3-030-89624-9
- Josse, T., Hadiwinata, M., Pratama, H., Brent, Z. W., & Barbesgaard, M. (2019). *Marine Spatial Planning: Resolving or entrenching conflicts*. Transnational Institute, Amsterdam.
- Jouffray, J. B., Blasiak, R., Norström, A. V., Österblom, H., & Nyström, M. (2020). The blue acceleration: the trajectory of human expansion into the ocean. *One Earth*, 2(1), 43-54.
- Kadfak, A., & Oskarsson, P. (2020). An (Urban) political ecology approach to small-scale fisheries in the global south. *Geoforum*, 108, 237-245. <https://doi.org/10.1016/j.geoforum.2019.11.008>
- Longo, S. B., & Clausen, R. (2011). The tragedy of the commodity: The overexploitation of the Mediterranean bluefin tuna fishery. *Organization & Environment*, 24(3), 312-328. <https://doi.org/10.1177/108602661141>
- Mallory, T. G. (2013). China's distant water fishing industry: Evolving policies and implications. *Marine Policy*, 38, 99-108. <https://doi.org/10.1016/j.marpol.2012.05.024>
- Mansfield, B. (2010). Modern industrial fisheries and the crisis of overfishing. In *Global Political Ecology* (pp. 98-113): Routledge. <https://doi.org/10.4324/9780203842249>
- Menzel, A. (2022). Maritime Security and the Blue Economy. In *Routledge Handbook of Maritime Security* (pp. 265-275). Routledge.
- Nolan, C. (2019). Power and access issues in Ghana's coastal fisheries: a political ecology of a closing commodity frontier. *Marine Policy*, 108, 103621. <https://doi.org/10.1016/j.marpol.2019.103621>
- Okafor-Yarwood, I., Kadagi, N. I., Miranda, N. A., Uku, J., Elegbede, I. O., & Adewumi, I. J. (2020). The blue economy-cultural livelihood-ecosystem conservation triangle: the African experience. *Frontiers in Marine Science*, 586. <https://doi.org/10.3389/fmars.2020.00586>
- Overå, R. (2011). Modernisation Narratives and Small-Scale Fisheries in Ghana and Zambia. *Forum for Development Studies*, 38(3), 321-343. <https://doi.org/10.1080/08039410.2011.596569>
- Parker, R. W., & Tyedmers, P. H. (2015). Fuel consumption of global fishing fleets: current understanding and knowledge gaps. *Fish and Fisheries*, 16(4), 684-696. <https://doi.org/10.1111/faf.12087>
- Pomeroy, R., Parks, J., Mrakovcich, K. L., & LaMonica, C. (2016). Drivers and impacts of fisheries scarcity, competition, and conflict on maritime security. *Marine Policy*, 67, 94-104. <https://doi.org/10.1016/j.marpol.2016.01.005>

- Said, A., & Trouillet, B. (2020). Bringing 'deep knowledge' of fisheries into marine spatial planning. *Maritime Studies*, 19(3), 347-357. <https://doi.org/10.1007/s40152-020-00178-y>
- Silver, J. J., N. J. Gray, L. M. Campbell, L. W. Fairbanks, and R. L. Gruby. 2015. 'Blue economy and competing discourses in international oceans governance.' *Journal of Environment and Development* 24 (2): 135–60. doi:10.1177/1070496515580797.
- Song, A. M. (2021). Civilian at Sea: Understanding Fisheries' Entanglement with Maritime Border Security. *Geopolitics*, 1-25. <https://doi.org/10.1080/14650045.2021.1997995>
- Voyer, M., Allison, E. H., Farmery, A., Fabinyi, M., Steenbergen, D. J., van Putten, I., ... & Andrew, N. (2021). The role of voluntary commitments in realizing the promise of the Blue Economy. *Global Environmental Change*, 71, 102372. <https://doi.org/10.1016/j.gloenvcha.2021.102372>
- Voyer, M., Quirk, G., McIlgorm, A., & Azmi, K. (2018). Shades of blue: what do competing interpretations of the Blue Economy mean for oceans governance? *Journal of Environmental Policy*, 20(5), 595-616. <https://doi.org/10.1080/1523908X.2018.1473153>

APPENDICES

Appendix 1

Interview Guide: Small-Scale Fisheries Experience and Perception with Blue Economy Sectors

The interviewee has been provided an information sheet, and agrees to be

Interviewed

Yes No

SECTION 1: INTERACTIONS OF SMALL-SCALE FISHERIES WITH OTHER COASTAL ECONOMIC SECTORS, MARITIME INDUSTRIES AND REGULATION.

1. Why did you start fishing among all other careers? Is it a tradition, necessity, or free choice? Explain.

2. Please tell me about the small-scale fishing business in this community. How long have you been a fisherman or fish trader/processor?

3. What changes, development, rules and regulations in the commercial port/petroleum production are small-scale fisheries concerned with?

4. How has the (commercial port/petroleum production) impacted on (fishers/ fish traders or processors) livelihoods? Explain in detail

5. How has the operation of the port/petroleum production impact on economic participation and livelihood of SSF?

Probes

1. Local inclusion/exclusion (the access to, use of, and control of ocean space)
2. Income and wealth generation
3. Employment and jobs
4. Standard of living of SSF actors
5. Post-harvest and processing facilities

6. Any collisions between canoes and oil supply vessels

Social and wellbeing issues

6. How does it impacts on the social livelihoods, history, heritage, culture and traditions of small-scale fisheries?

Probes

The impact on their interactions and relationship with others in:

1. Markets: for food, labour, and ecosystem related products
2. State: for regulation, citizenship right and governance
3. Community: for identity and local governance
4. Health and safety-related to access to fishery resources
5. Household: for affection and support
6. History, heritage, culture and traditions

Ecological issues

7. In which way has the operation the port infrastructure/petroleum sector impacted on the fishing activity?

Probes

1. Marine habitats
2. Ecosystem resilience
3. Coastal fishery resources regeneration and harvest

SECTION 2: INDUSTRIAL FISHING, FISHERIES GOVERNANCE AND MANAGEMENT, CONSERVATION REGIMES

8. Are the small-scale actors involved in industrial fishing activities?

If not, why? If so, how?

Prompts:

1. Are they employed part-time on industrial fishing activities and part-time small-scale?
2. Is there any relationship between industrial and small-scale fishers? (e.g. do they barter fish, trade fish or other products, or share information?)

9. Who are those who engage in industrial fisheries? How are they different from the small-scale fisheries?

Prompts:

1. Where do they come from? (e.g. what is their ethnic/geographic background?)
2. What are the different profit-sharing systems? (e.g. wages, based on catch)

10. How do you condition the fishery resource compared to ten years ago? Have the small-scale fisheries changed (over the last ten years) by the increased activities and operations of the industrial fisheries actors?

Probes

how industrial fisheries impact on:

1. How small-scale fisheries fish
2. Where small-scale fisheries go fishing
3. What small-scale fisheries catch
4. How long fishers fish
5. Fish selling activities

11. Tell me precisely what small-scale fisheries are worried about in term of their livelihood and way of life as the industrial fisheries continue to cause the changes mentioned above

12. Do you think the Fisheries Commission is able to monitor the fisheries sectors very well? Are small-scale fisheries satisfying with the different policies and measures put in place to manage the fisheries?

13. What policies or management measures are you not satisfied about? Why do you feel these are not good for small-scale fisheries? Do you think some other fisheries are better off compared to small-scale fisheries in implementing these measures?

14. Do you think the Fisheries Commission management response to the fisheries crises is, in many ways, creating a crisis of its own amongst fishing peoples? If so explain?

15. Let talk about the closed season policy, what do you think about it? Do you think it was a useful measure to safe the dwindling fisheries? Which fisheries do you feel benefited most from such fishery management policies?

[]

16. Tell me how the government subsidies and managed premix fuel exist in this community. Do you think this is the best way to handle it? Do you believe it favours a particular group of fishers than others? If so, how?

[]

17. Compare to some of the traditional management, laws and institutions that exist among fishers do think the Fisheries Commission approach to managing fisheries is the best? If so/not explain

[]

SECTION 3: coping, adaptation, innovation mechanism, systems and structures

Prompts

Ask questions in line with the different sectors discussed above i.e.

- (a) The port infrastructure and development/petroleum production
- (b) The industrial fisheries operation

18. Do you think small-scale fisheries in this community is able to withstand (cope with) further/future changes? How?

[]

19. What are the specific adaptation strategies and the coping mechanism used by small-scale fisheries people to mitigate these economic, social and ecological impacts?

[]

Probes

1. How does other fishers or relation with other fishers help you to adapt or cope
2. Diversification of career (e.g. are there employment opportunities in new industries? What are the barriers to entry? Is migration being considered?)
3. Economic capital - what have they done economically to cope and adapt, i.e. investment/saving/empower children
4. Social capital - what forms of social systems are they capitalising on to respond and adapt
5. Political capital - are they taking advantage of the political interest in the coastal areas? How? Or collective political actions

20. Is there any specific example of innovations or new ways to mitigate these economic, social and ecological impacts on your livelihoods?

[]

Probes

1. Mobilisation of collective assets and capacities

2. Formation of political organisations, civil society organisations, community groups (if already exist, any new approach/ways they advocate, how?)
3. Use of technology to improve catch, improve post-harvest losses, improve value and price of fish
4. Using any local and traditional knowledge or skills to help adapt or cope

21. Do you think among the small-scale fisheries there some particular types of small-scale fishers that are more able to adapt? In which ways is that possible?

Prompts

1. Examples are richer fishers able to adapt more easily?
2. Are those with multiple livelihoods able to adapt more quickly than those with more specialised livelihoods?
3. Which households, groups and communities are able to adapt more successfully than others, and why?
4. Are fishers who wives are traders and processors able to adapt than those who sell directly to the market?

22. In you view what action do you think if fishers/fish traders or processors embark on will help you better cope or adapt to the challenges you are facing in the fisheries sector?

Appendix 2

Interviews Guide: Industrial Fisheries Actors in Ghana

The interviewee has been provided an information sheet, and agrees to be

Interviewed

Yes No

Section One: Blue Economy Interpretation, Motives and Intentions

1. Have you ever heard of the term 'blue economy'? What does it imply for Ghana's ocean discourse?

2. Can you describe the distinctions between industrial trawlers, tuna vessels, and small-scale fisheries?

Inquire further

1. What are their statutory physical characteristics?
2. What are their statutory territorial fishing zones?
3. Which fish species are targeted by law?
4. What equipment is mandated by law?

3. What are the legal and regulatory requirements for operating an Industrial Trawler or Tuna Vessel in Ghana?

Investigate further each of them.

1. Who is eligible?
2. What are the various licencing schemes?
3. How do I acquire a licence?
4. What are the licencing specifications?

4. Is any tuna vessel in Ghana operating under a Fishery Partnership Agreement with a foreign country (such as the EU or any other country)?

5. What is the precise social and economic impact of the Trawler and Tuna fisheries on the Ghanaian economy?

Inquire further

- 1) Inquire in further detail as to how their actions impact local coastal populations.

2) Ask more detail question to base on the concerns the small-scale actors raised

6. What is your assessment of the effectiveness of the current fisheries management plans and policies?

Probe

- 1) Who implement the plans and policies
- 2) The capacity to effectively apply the law
- 3) What is the major weakness in the law
- 4) etc.

7. Based on your assessment, is the conservation plans and policies effectively implemented to support the growth of all fisheries?

Probe

1. Find out whether small-scale fisheries are adequately protected?

8. Do you think the Industrial and Tuna Vessel activities have an impact small-scale fisheries sustainability and livelihoods?

Probe

1. Asked the various form of impacts the small-scale fisheries have raised

9. Are there any interactions, collaboration and cooperation between the Tuna and industrial trawlers and the small-scale fisheries actors?

Probes

- 1) Are some small-scale fisheries actors employed with Tuna or industrial trawlers
- 2) Do they sell some catch to small-scale fisheries actors
- 3) Compensations for collision or destruction of gear

Appendix 3

Interviews Guide: Port Official in Ghana

The interviewee has been provided an information sheet, and agrees to be

Interviewed

Yes No

Section One: Background

1. Have you ever heard of the term 'blue economy'? What does it imply for Ghana's ocean discourse?

2. Can you briefly describe your responsibilities as the port official in this region?

3. What are your general assessments of Ghana's small-scale fisheries sectors? What opportunities and challenges exist?

Section Two: Perception and relationship of blue economy sectors with small-scale fisheries

4. What difficulties do small-scale fisheries actors and communities face as a result of commercial port activity, based on your experiences as a fisheries manager?

5. Are there any forms of interactions, collaboration and cooperation between port and the small-scale fisheries actors in this community regarding their challenges?

6. What form does the interaction between the port and small-scale fisheries community and actors occur and at what level?

Probes

1. Nature of meetings
2. People involved in meetings

7. Describe the types of topics on which the port authorities collaborates and works with the small-scale fishing community and actors.

Probes

1. Types of topics addressed
2. Commentary from the community regarding meetings

8. Are there specific port activities and operations that the small-scale fisheries people and communities in the surrounding communities are concern about?

9. Can the port operation succeed without negatively affecting small-scale fisheries activity and local communities?

Section three: Social Responsibility for small-scale fisheries people and communities

10. Do the port practise corporate social responsibility (CSR) in the community, or do you have a corporate social responsibility plan?

Probes

1. Benefits to the community (infrastructure, employment, etc.)
2. Respect for the community's tradition and culture
3. Social value and network
4. Integration of the community and maintenance of their social and economic well-being.

Appendix 4

Key Informant Interview Guide for Civil Society Participants

The interviewee has been provided with an information sheet and agrees to be interviewed

Yes

No

Section 1: Background

1. What does your organisation do?

The main interest of the organisation:

1. Environmental/Sustainability, or 2) Livelihood 3) Economic and Empowerment

2. What steps do you take to address ocean and coastal issues in Ghana?

3. Which ocean sector activities have gained government priority and attention during the past decade?

Section 2: Understanding of the Blue Economy

4. How would you describe the economic and social potential of Ghana's maritime economy?

5. Have you ever heard of the term 'blue economy'? What does it imply for Ghana's ocean discourse?

6. Are small-scale fisheries positioned favourably relative to other ocean sectors in government policy plans for Ghana?

Section 2: Perception of the impact port operation and fishery management

7. What is your assessment of the small-scale fisheries sectors potentials?

8. How would you describe the social, economic, and ecological interactions between small-scale and industrial fisheries?

9. How do you evaluate the challenges faced by small-scale fisheries actors operating in and around the ports of Tema and Takoradi?

10. What is your evaluation of the efficiency of existing fisheries management and marine conservation policies and plans??

11. Based on your assessment, does the Ghana fisheries policies support small-scale fisheries growth?

12. What exact policies do you think support or disadvantage the small-scale fisheries sector?

13. What suggestion can you propose to deal with the challenges small-scale fisheries are facing from other ocean sector such as the Industrial fisheries sector and port systems in major coastal communities?

Appendix 5

Participant information sheet for fishing actors

ETH20-5320: The Blue Economy in Ghana: Industrialisation, Contestation and Impacts on Small-Scale Fisheries

WHO IS DOING THE RESEARCH?

My name is Raymond Ayilu, and I am a PhD student at UTS. My supervisors are Michael Fabinyi and Kate Barclay, academic staff at the Faculty of Arts and Social Sciences, University of Technology, Sydney, Sydney, Australia.

WHAT IS THIS RESEARCH ABOUT?

The blue economy is an emerging concept for ocean governance that aims to reconcile economic growth with ecological conservation. This project seeks to understand the blue economy in Ghana and Liberia, with a specific focus on impacts on small-scale fisheries and their adaptations. We do not belong to any government, development or a civil society organisation. The purpose of this study is purely for academic purposes; we may not be able to offer any form of support, development or advocacy.

FUNDING

The study is entirely an academic work and has an internal grant from the Faculty of Arts and Social Sciences, University of Technology Sydney and Governing the Blue Economy in Maritime Asia-Pacific project funded by Australian Research Council.

WHY HAVE I BEEN ASKED?

You have been invited to participate in this study because you have knowledge and experiences about in small-scale fisheries that form part of the blue economic sectors being studied.

IF I SAY YES, WHAT WILL IT INVOLVE?

You will participate in a face to face/online interview/focus group discussion, and Research Assistants will organise the interviews. They may conduct them if the research student is unable to do so due to travel restrictions and network disruptions. The interview/focus group discussion may last between 60 - 90 minutes and will be conducted at your local community fishing landing site and will be audio-recorded and transcribed.

We will ask you about your livelihood history and current livelihood activities within fisheries. I will also ask you question regarding the challenges you faced working alongside other blue economy sectors. When we take notes, and if we use material from your interview when we publish the results of this project, it will be de-identified through using pseudonyms (without naming you).

ARE THERE ANY RISKS/INCONVENIENCE?

Yes, some of the questions may cause anxiety or bring to mind emotional discomfort since you may recall personal experiences and talk about your livelihoods. For such questions, you do not have to answer any questions you feel uncomfortable with. We will be very careful with the information you give us, we will not tell other people what you tell me (unless you choose to be identified) and we will store the information you give to me very carefully so that other people may not access it. If any sensitive or confidential information is accidentally disclosed to us that could cause harm to you, we will discuss with you ways in which this information will either be deleted or kept confidential.

DO I HAVE TO SAY YES?

Participation in this study is voluntary. It is entirely up to you whether or not you decide to take part

WHAT WILL HAPPEN IF I SAY NO?

If you decide not to participate, it will not affect your relationship with the researchers or the University of Technology Sydney and the Fisheries Committee for the West Central Gulf of Guinea. If you wish to withdraw from the study once it has started, you can do so at any time without having to give a reason, by contacting Michael Fabinyi (contact details below).

If you withdraw from the study, the study tapes will be erased, and the transcripts will be destroyed.

CONFIDENTIALITY

By signing the consent form, you consent to the research team (including research assistants) collecting and using personal information about you for the research project. All this information will be treated confidentially. The researcher fieldwork recordings will be kept with researchers at all times when travelling, in a bag. When back at our universities, these will be kept in back up on password-protected secure servers, accessible only to the research team. Transcriptions will not include the name or other contact details of participants but will be de-identified with pseudonyms.

We would like to store your information for future use in research projects that are an extension of this research project. In all instances, your information will be treated confidentially

We plan to publish the results as PhD thesis, academic journal articles, and conference papers. In any publication, the information will be provided in such a way that you cannot be identified

WHAT IF I HAVE CONCERNS OR A COMPLAINT?

If you have concerns about the research that you think my supervisor or I can help you with, please feel free to contact me us on

Raymond Ayilu: raymond.k.ayilu@student.uts.edu.au ; Phone: +61

Michael Fabinyi: michael.fabinyi@uts.edu.au ; Phone: +61 2 9514 2308

Seraphin Dedi: secretariat@fwc-fish.org; Phone +233 30 320 5323

You will be given a copy of this form to keep.

NOTE:

This study has been approved in line with the University of Technology Sydney Human Research Ethics Committee [UTS HREC] guidelines. If you have any concerns or complaints about any aspect of the conduct of this research, please contact the Ethics Secretariat on ph.: +61 2 9514 2478 or email: Research.Ethics@uts.edu.au], and quote the UTS HREC reference number. Any matter raised will be treated confidentially, investigated and you will be informed of the outcome.

Appendix 6

Participant information sheet for government and NGOs officials

ETH20-5320: The Blue Economy in Ghana: Industrialisation, Contestation and Impacts on Small-Scale Fisheries

WHO IS DOING THE RESEARCH?

My name is Raymond Ayilu, and I am a PhD student at UTS. My supervisors are Michael Fabinyi and Kate Barclay, academic staff at the Faculty of Arts and Social Sciences, University of Technology, Sydney, Sydney, Australia.

WHAT IS THIS RESEARCH ABOUT?

The blue economy is an emerging concept for ocean governance that aims to reconcile economic growth with ecological conservation. This project seeks to understand the blue economy in Ghana and Liberia, with a specific focus on impacts on small-scale fishers and their adaptations.

FUNDING

The study is entirely an academic work and has an internal grant from the Faculty of Arts and Social Sciences, University of Technology Sydney and Governing the Blue Economy in Maritime Asia-Pacific project funded by Australian Research Council.

WHY HAVE I BEEN ASKED?

You have been invited to participate in this study because your institution has experience in research and advocacy within the blue economic sectors investigated in this study.

IF I SAY YES, WHAT WILL IT INVOLVE?

You will participate in a face to face/online interview, and Research Assistants will organise the interviews. They may conduct them if the research student is unable to do so due to travel restrictions and network disruptions. The interview may last between 60 - 90 minutes and will be audio-recorded and transcribed. The interview will be conducted during working hours, preferably at your workplace.

We will ask you about your knowledge on the history, intentions and motives of investments, plans and policies on some blue economy sectors. We will also ask about your views on how these sectors relate positively and negatively with other important sectors particularly small-scale fisheries. When we take notes, and if we use material from your interview when we publish the results of this project, it will be de-identified through using pseudonyms (without naming you).

ARE THERE ANY RISKS/INCONVENIENCE?

Yes, there may be a potential risk to the reputation of the government representative. However, the study provides a comprehensive strategy to manage the risk associated with the research participants. Your answers, opinions and information you provide through this interview will be treated as a general observation, and not directly linked to you or your organisation. Moreover, direct quotes will use pseudonyms to conceal your and/or the organisation.

The interview will take up some of your time and may ask sensitive questions, which may constitute inconvenience. You do not have to answer any questions you feel uncomfortable with. We will be very careful with the information you give us, we will not tell other people what you tell me (unless you choose to be identified) and we will store the information you give to me very carefully so that other people may not access it. If any sensitive or confidential information is accidentally disclosed to us that could cause harm to you, we will discuss with you ways in which this information will either be deleted or kept confidential.

DO I HAVE TO SAY YES?

Participation in this study is voluntary. It is entirely up to you whether or not you decide to take part

WHAT WILL HAPPEN IF I SAY NO?

If you decide not to participate, it will not affect your relationship with the researchers or the University of Technology Sydney and the Fisheries Committee for the West Central Gulf of Guinea. If you wish to withdraw from the study once it has started, you can do so at any time without having to give a reason, by contacting Michael Fabinyi (contact details below).

If you withdraw from the study, the study tapes will be erased, and the transcripts will be destroyed.

CONFIDENTIALITY

By signing the consent form, you consent to the research team (including research assistants) collecting and using personal information about you for the research project. All this information will be treated confidentially. The researcher fieldwork recordings will be kept with researchers at all times when travelling, in a bag. When back at our universities, these will be kept in back up on password-protected secure servers, accessible only to the research team. Transcriptions will not include the name or other contact details of participants but will be de-identified with pseudonyms.

We would like to store your information for future use in research projects that are an extension of this research project. In all instances, your information will be treated confidentially

We plan to publish the results as PhD thesis, academic journal articles, and conference papers. In any publication, the information will be provided in such a way that you cannot be identified.

WHAT IF I HAVE CONCERNS OR A COMPLAINT?

If you have concerns about the research that you think my supervisor or I can help you with, please feel free to contact me us on

Raymond Ayilu: raymond.k.ayilu@student.uts.edu.au ; Phone: +61 [REDACTED]
Michael Fabinyi: michael.fabinyi@uts.edu.au ; Phone: +61 2 9514 2308

Seraphin Dedi: secretariat@fwc-fish.org; Phone +233 30 320 5323

You will be given a copy of this form to keep.

NOTE:

This study has been approved in line with the University of Technology Sydney Human Research Ethics Committee [UTS HREC] guidelines. If you have any concerns or complaints about any aspect of the conduct of this research, please contact the Ethics Secretariat on ph.: +61 2 9514 2478 or email: Research.Ethics@uts.edu.au], and quote the UTS HREC reference number. Any matter raised will be treated confidentially, investigated and you will be informed of the outcome.

Appendix 7

Consent form for government and NGOs officials

ETH20-5320: The Blue Economy in Ghana: Industrialisation, Contestation and Impacts on Small-Scale Fisheries

I _____ agree to participate in the research project ETH20-5320: The Blue Economy in West Africa: Social and Ecological Impacts and Adaptions in Small-Scale Fisheries being conducted by Raymond Ayilu, the Faculty of Arts and Social Sciences, University of Technology Sydney, Sydney, Australia. Telephone number +61 _____. I understand that funding for this research has been provided by the Faculty of Arts and Social Sciences of the University of Technology Sydney, Australia and Governing the Blue Economy in Maritime Asia-Pacific project funded by Australian Research Council.

I have an endorsement from the organisation I work for before participating in the interviews.

I have read the Participant Information Sheet or someone has read it to me in a language that I understand.

I understand the purposes, procedures and risks of the research as described in the Participant Information Sheet.

I have had an opportunity to ask questions and I am satisfied with the answers I have received.

I freely agree to participate in this research project as described and understand that I am free to withdraw at any time without affecting my relationship with the researchers or the University of Technology Sydney.

I understand that I will be given a signed copy of this document to keep.

I agree to be:

Audio recorded

I agree that the research data gathered from this project may be published in a form that:

May be used for future research purposes

Does not identify me in any way

I am aware that I can contact Raymond Ayilu: raymond.k.ayilu@student.uts.edu.au ; Phone: +61 _____; Michael Fabinyi: michael.fabinyi@uts.edu.au ; Phone: +61 2 9514 2308; Seraphin Dedi: secretariat@fcwc-fish.org; Phone +233 30 320 5323 if I have any concerns about the research.

_____ / ____ / _____

Name and Signature [participant]

Date

Name and Signature [researcher or delegate]

____/____/____
Date

*** Witness to the consent process**

If the participant, or if their legally acceptable representative, is not able to read this document, this form must be witnessed by an independent person over the age of 18. In the event that an interpreter is used, the interpreter may not act as a witness to the consent process. By signing the consent form, the witness attests that the information in the consent form and any other written information was accurately explained to, and apparently understood by, the participant (or representative) and that informed consent was freely given by the participant (or representative)

Appendix 8

Verbal consent script for fishing actors

ETH20-5320: The Blue Economy in Ghana: Industrialisation, Contestation and Impacts on Small-Scale Fisheries

Interview no:

Date:

Time:

Interviewer:

Thank you for agreeing to speak with me today about how the small-scale fisheries activities and some of the challenges and difficulties you are going through especially with the surge and focus in other ocean sectors in recent times. This might be a sensitive issue because it really deals with your economic and social livelihood so if you are feeling distressed or need to take a break we can stop at any time. The interview will take approximately 60 minutes. If you feel that you would rather not go on with the interview that is fine too.

[Waiting for participant to confirm they are happy to continue, otherwise thank them for their time.]

Thank you. Now I just need to confirm some information about you, and I'm going to start audio recording. This will help us to accurately record your story and answers, but all this information will remain completely confidential. Is that OK?

First, I need to ask you some questions to confirm that you consent to participating. Remember, even after you've answered these questions, you can withdraw your consent at any time during the interview. If you decided to withdraw from the study your data will be removed and destroyed.

The consent questions are:

Question	Yes	No
Have you read the information contained in the participant information sheet?		
Have you had an opportunity to ask questions and are you satisfied with the answers you have received?		
Do you understand that there may be risks such as anxiety or embarrassment since it may deal with your social and economic livelihood, and this may raise expectations and past reflections that could potentially lead to emotional and psychological discomfort		

Do you understand that the research will produce, academic work, articles, and a book		
Do you freely agree to participate in this activity, with the understanding that you may withdraw at any time?		
Do you agree to having this interview audio recorded and transcribed?		

(If answered NO to any of these - clarify and/or discontinue interview)

If you have any concerns about the research you can contact

Raymond Ayilu: raymond.k.ayilu@student.uts.edu.au; Phone: +61 [REDACTED]: or

Michael Fabinyi: michael.fabinyi@uts.edu.au; Phone: +61 2 9514 2308.

Seraphin Dedi: secretariat@fwc-fish.org; Phone +233 30 320 5323

If you would like to talk to someone who is not connected with the research, you may contact the Research Ethics Officer on 02 9514 9772 or Research.ethics@uts.edu.au and quote this number ETH20-5320

If the participant declines to provide verbal consent:

Interview no. _____ read the verbal consent script (or had it read to them) and agreed to participate on date: _____ time: _____ .

Appendix 9

Distress and Safety Protocol

ETH20-5320: The Blue Economy in Ghana: Industrialisation, Contestation and Impacts on Small-Scale Fisheries

The following protocols will be put in place should a participant become distressed and require either additional or on going assistance, including the researcher conducting the interviews. The first protocol refers to all participants, the second refers specifically to the participants who may declare some illegal activities, and the third protocol will be followed by the researcher.

Prior to the commencement of any interview, the researcher will provide sufficient information regarding the risks and benefits of the research so that individuals may freely accept or decline participation. This information will have been made available to the participant prior to the interview commencing as part of the information sheet.

Strategies to assist participants distressed during an interview

Should a participant become uncomfortable or distressed while discussing any topic during the interview, the following actions will be taken by the interviewer:

The researcher will suggest that it is appropriate that the interview be terminated.

If the participant wishes this to happen, the interview will be ceased.

A follow-up phone call or email will be made by the interviewer the following day to ensure that the participant is well and to determine feasibility of a follow up interview if one is planned.

Specific protocol for participants who may disclose illegal activities

Even though the researcher will not be asking about illegal activities, participants who disclose some illegal activities to the researcher(s) will be the main object of this protocol.

If the participant disclose an illegal activity during the interview they will be asked if they want this information removed, if the answer is yes, then that information will be remove from the data,

If the participants are comfortable that this information be disclosed, no reference to the person saying it will be made in the study.

The data published will be de-identified.

Distress and safety Protocol: Researcher (PhD student)

The following protocol will be put in place should a researcher become distressed or be at risk during field work and require emergency, additional or on going assistance. A range of services could be offered depending on her circumstances.

Strategies to assist those distressed during an interview.

1. The researcher have regular meeting with their supervisors

2. The researcher will be referred to a counselling professional to discuss their concerns
3. The researcher will always carry a mobile phone while working in the field and will share the contact details and location of the interviews with research team