
# Understanding masculinities should be a MUST in fisheries: The case of small-scale fishermen in Zanzibar, Tanzania.

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VIEWPOINT

# Understanding masculinities should be a MUST in fisheries: The case of small-scale fishermen in Zanzibar, Tanzania.

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**Abstract**
Human interactions with the environment are critical for ecological integrity and long-term sustainability. Within this context, men's roles are particularly significant in relation to the ocean, as they have historically dominated maritime activities including fisheries, trade, construction, travel, and seafaring. Achieving equitable fisheries management thus requires a more systematic understanding of how gender constructs shape practices in specific settings. Yet, the dynamics of men and masculinities remain insufficiently theorized, underscoring the need for more robust analytical frameworks. This *viewpoint* article argues that engaging directly with masculinities is essential for improving fisheries management and advancing ocean sustainability. The analysis builds on Hultman's (2017) and Hultman and Pulé's (2018) typology of industrial/breadwinner, ecomodern, and ecological masculinities, and explores this framework to small-scale fisheries on Unguja Island (Zanzibar), Tanzania. The findings indicate that masculinities in Zanzibar are closely associated with the fishing gear employed. Two distinct forms were identified. "Soft masculinity", linked to basket-traps and handlines, is characterized by ecological knowledge, strong historical continuity, legality, slower modes of practice, and sustainability. In contrast, "hard masculinity", associated with drag nets and spearfishing, reflects limited ecological knowledge, shallow historical roots, illegality, rapid extraction, and unsustainability. Taken together, these findings reveal how fishing gear and constructions of masculinity are deeply interconnected, and how these interrelations in turn shape ecological outcomes in the marine environment. The *viewpoint* therefore contributes a practical model for continued inquiry into masculinities—one that encourages the adoption of more inclusive and ecologically grounded ways of engaging with the ocean.

**Keywords** Masculinities · gender · small-scale fisheries · coastal management · coastal governance · Zanzibar · Tanzania · Western Indian Ocean · inclusive management · co-management · adaptive governance

## Introduction

The way that humans relate to and deal with the environment is critical for sustainability, with men having a disproportionate large influence on the use and state of nature (Hultman 2017). Particularly after World War II, "white Western men" have sustained extractive economies dependent on oil supported by neoliberal agendas. This has damaged the planet's ecosystems and exacerbated economic inequalities (Hultman and Pulé 2018). The ocean domain is not an exception, with men having large influence and domination. From a gender binary perspective, it is well established now that women are active in most ocean affairs, but their activities have often been ignored or unnoticed. Women's behaviours differ from men in terms of organization, reasons for engagement and space of operations (Kleiber et al. 2015; Harper et al. 2013, 2020; de la Torre-Castro et al.

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2017). Recent developments promoting better ocean governance stress the need for equitable fishery management. This requires an in-depth understanding of how gender constructs are created and recreated, how they manifest in specific contexts, and how masculine hegemony is expressed (Hultman and Pulé 2024). However, in ocean social studies, social constructs related to men, and masculinities, are often not well understood or are simplified. As Allison invited us in his talk at the MARE conference (2013) there is a strong need to understand more about those. Masculinities within marine fisheries are often socially constructed within the context of the fishing activity in which men are engaged, ranging from deep sea trawling to varieties of small-scale fisheries, requiring different degrees of technical sophistication and ecological knowledge, but also the extent to which harvested species are commercialized (e.g., Gustavsson and Riley 2020). The life of the fishers on land is also important, expressing itself differently according to culture, economic and historical features of particular places.

The overall objective of this *viewpoint* article is to highlight the theme of masculinity and its relationship to ocean sustainability and better understanding of fishery contexts. For our purpose, we understand masculinity as the set of male norms, male actions and the effect of those actions on the marine environment. Masculinities also entail the particular ways in which fishermen construct themselves and the fishery, while working with it on a daily basis and during a life-time; often situated in a context in which knowledge is passed through generations. Our interest was empirically sparkled by long-term research and observations on how masculinities are manifested locally in Zanzibar (Unguja), Tanzania; and theoretically, by the work of Hultman (2017) and Hultman and Pulé (2018), investigating different types of masculinities and environmental nexus. Departing from the fact that we live in a gendered world, and men have disproportionate power over other genders as well as nature (Hultman and Pulé 2018) we explore masculinities to promote change. In our particular concern, this means that is essential to understand men and masculinities to gain a deeper understanding of fisheries' activities, the exploitation of the fishery resources and the marine ecosystems to be able to push transformation towards sustainability. The typology of masculinities presented in Hultman's work is situated in a particular context and as such is not universal, but provides an entry point for the analysis of other contexts, natural environments and scales. In this *viewpoint* we explore these ideas in the context of small-scale fisheries in Zanzibar.

In the book *Ecological masculinities*, Hultman and Pulé (2018), present three ideal-types of masculinities that have evolved in the context of Western capitalist societies. The first, industrial/breadwinner masculinity is related to the capitalist fossil fuelled production modes of exploitation and societal development. Industrial refers to those men who own the means of production, extracting natural resources. Breadwinners are those belonging to the industrial labour force in which both are shaped by fossil capitalism. This is related to the classical order of a small group having the ownership over the means of production and a large working group just offering labour. The second category, ecomodern masculinities, represent "the embodiments of masculine identities that valorise sustainability through (ecomodern) current notions of reform" (Hultman 2013). This ideal type aligns with global responsibility and a care for common resources but acts within the market forces of industrial and corporate capitalism, this type also embraces technological optimism. So, in that sense they have some kind of ecological consciousness but they are not radical since they live and act within the system boundaries of "business as usual", and do not challenge or transform the actual conditions. The authors then go further and consider a third category referred to as ecological masculinities. Aspects of this category have been treated by several scholars before while searching for a male identity that does not fit the first two categories. Ecological masculinity is both empirical and normative. It refers to those men who recognize the relationality of humans and other species, but also to a masculinity that ought to be (Hultman 2013). It is a proposition for a better world with less male processes of domination and exploitation. This category is deep in self-consciousness, optimistic and future oriented based on the premise that masculinities are constructed and changeable, not determined and static (Pulé and Hultman 2021). This category has recently informed a range of studies over the globe (for a recent overview see Hultman and Pulé 2024).

In the present contribution we explore if using this classification of masculinities in a small-scale fishery context is fruitful. In order to do that, the empirical study design is flipped, instead of looking at white men in the North, we look at black men in small-scale fisheries in the economically poor tropical South. This is opposed to the empirical studies done by Hultman which informed the typology above and place it in a white affluent Northern context. Fossil fuelled industrialization and colonization has caused an alienation of humans from nature. Goods and commodities have been differently produced over time and space, the transformation from earth to capital and to the market economy as basis for accumulation meant the relocation of people from agriculture and fisheries to industry, and thus an alienation from nature. In terms of fisheries, this has meant that fisheries have been rationalized and technologized with larger and larger ships sweeping the ocean indiscriminately, and normally shifting from handicraft to industrialized, with strong incentives promoting large scale operations.

The technological advances and the growing markets in the capitalist society have resulted in a separation of humans from nature and there is a strong need of a reconnection to the biosphere (Folke et al. 2011, 2016: Folke and Gunderson 2012). Nowadays children in the north are ignorant of the fact that their fish and chips actually originate from fish swimming in the sea and potatoes growing in the soil. Children in coastal areas in the south have a "shifting baseline" (Pinnegar and Engelhard 2008) perception on fish resources and stocks as compared to their ancestors. This is known as "generational amnesia", where knowledge extinction occurs because younger generations are not aware of past biological conditions" (Direct citation from: Papworth et al. 2009; see also Jones et al. 2020).

Small-scale fisheries, particularly in the South, still play a major role as backbone of the local economies being deeply rooted in specific socio-cultural traditions (Allison and Ellis 2001; Andrew et al. 2007; de la Torre-Castro and Lindström 2010, Cochrane et al. 2011; Dias et al. 2023). Fish is a major source of protein and a cash "crop". The ways in which fish are "produced", the different methods used to catch fish in small-scale fisheries entail, we argue, differences in knowledge and awareness of e.g., fish ecology, ecosystem function, water dynamics and the marine environment in general. Contact with nature is important to produce local ecological knowledge and in Zanzibar there are various examples of its relevance, e.g., for seagrasses and ecosystems services (de la Torre-Castro and Rönnbäck 2004); seascape connectivity (Berkström et al. 2019); fish abundance and catches (de la Torre-Castro et al. 2014; Silas et al. 2023); and food web interactions (Wallner-Hahn et al. 2015).

The specific objective of this *viewpoint* is to illustrate small-scale fisheries in Zanzibar, Tanzania using Hultman (2017) and Hultman and Pulé (2018) as a starting point and discuss how masculinities are contextual, deeply linked to the fishery and interact with nature differently. The key purpose of the contribution is to highlight how important the theme of masculinity is for achieving better fisheries and ocean sustainability. Gender research in fisheries has been lacking, but now there is a growing body of scientific contributions and scholars addressing gender and women (e.g., Weeratunge et al. 2010; Harper et al. 2013; Kleiber et al. 2015; de la Torre-Castro et al. 2017; Harper et al. 2020). A remarkable recent example is the *Illuminating Hidden Harvests* research project and its report (FAO, Duke University and WorldFish 2023), in which women and gender in fisheries were emphasised globally. In Zanzibar, during the last decade gender and women have been addressed in fisheries (Fröcklin et al. 2014); aquaculture (Fröcklin et al. 2012, 2018; Brugere et al. 2020); markets (Fröcklin et al. 2013); seascapes (de la Torre-Castro et al. 2017); adaptive capacity to climate change (de la Torre-Castro et al. 2022); general adaptive capacity (Pike et al. 2022); and changes in livelihoods over time (Pike et al. 2024). Examples linking gender and specific tropical ecosystems are also available (de la Torre-Castro 2019) and an analysis using intersectionality (Axelrod et al. 2022). However, there is still much knowledge to dig in. There is a paucity of research on male related aspects, masculinity and how it affects social and environmental relationships.

The structure of the paper is as follows. We begin providing an explanation of the approach taken to write the *viewpoint*, followed by a description of the study area, we then continue with a presentation of the main types of male small-scale fisheries and their gears in the area; and finally, we discuss the fisheries' practices in terms of masculinity taking Hultman (2017) and Hultman's and Pulé (2018) work in consideration and explore the importance of such for fisheries sustainability and future development.

## Approach and positioning

The idea of using Hultman's typology in Zanzibar was fuelled by the need to highlight the masculinity theme into marine/ocean/coastal research, policy and management. It was considered that all important elements to make a contribution stressing the importance of masculinity in small-scale fisheries were present. There was an elaborated typology of masculinities and vast knowledge about Zanzibar's social-ecological system. Studying the typology gave an entry point to the masculinity analysis in Zanzibar. Further the *viewpoint* also discusses to what extent this was useful and provides some ideas for future exploration. Central to this contribution is to respond to Allison's (2013) invitation stating that we need to know more about marine masculinities. The authors identified themselves as researchers interested in key social and ecological factors for enhancing environmental sustainability in different situations and contexts, some have more experience in the South (e.g., Jiddawi and de la Torre-Castro), Hultman has more experience in the North while Lindström has mixed experiences. Jiddawi is born in Zanzibar and has devoted all her life to work with fisheries, gender and the marine environment; de la Torre-Castro started research in Zanzibar in the late 90s and has been active since then, with numerous research projects, recurring field trips and visits up to the present. Lindström has also been active in Zanzibar since the early 2000s. The authors of this *viewpoint* have a special interest in highlighting human interactions with the environment trying to identify critical issues to enhance coastal/ocean management and governance. For this particular contribution, three main sources of knowledge were used: The

first is our long-term experience working, living and doing research in Zanzibar; the second one is the scientific literature we have previously produced (in which specific papers are more important than others, see Fig. 1) and the third source is the theoretical framework and broad experience in the theme of masculinities deposited in Hultman's work and his participation as co-author. The work done is analytical and solid as it is not purely theoretical but the propositions are based on empirical work. The analysis originates from the authors themselves and has not yet been discussed with the fishermen. This means that special care and inclusion will be needed for further application (see also last section of the *viewpoint*). Focusing on small-scale fisheries in Zanzibar, we look at how constructions differ with gears used, fishing organizations, *modus operandi*, and species targeted. The previous research encompasses a variety of methods of data collection (Fig. 1). The new analysis of masculinities presented here draws specially from the institutional analysis presented in de la Torre-Castro and Lindström (2010) in which an analysis of regulative, normative and cultural aspects of the fishery was done; de la Torre-Castro (2006) in which fisheries monitoring agents were analysed considering contextual factors, poverty and problems in reporting illegal fishery activities; Wallner-Hahn et al. (2016, ) and Wallner-Hahn and de la Torre-Castro (2018) in which destructive fishing methods were investigated and data from a large household survey in the Island in which livelihoods were analysed (Pike et al. 2022, 2024). Eriksson et al. (2010, 2012) has provided valuable information about scuba and skin divers' spear fishing while Gustavsson et al. (2014) made an in-depth analysis of justice aspects in Zanzibar Island considering gender. The quotes were extracted from field work notes from the field seasons done in the years 2022−2008 and 2018. The work about women and gender by Fröcklin S and de la Torre-Castro M. has also been valuable to understand masculinities for this *viewpoint*. For more information on methods and sample sizes see Fig. 1 below, or directly in the given sources.

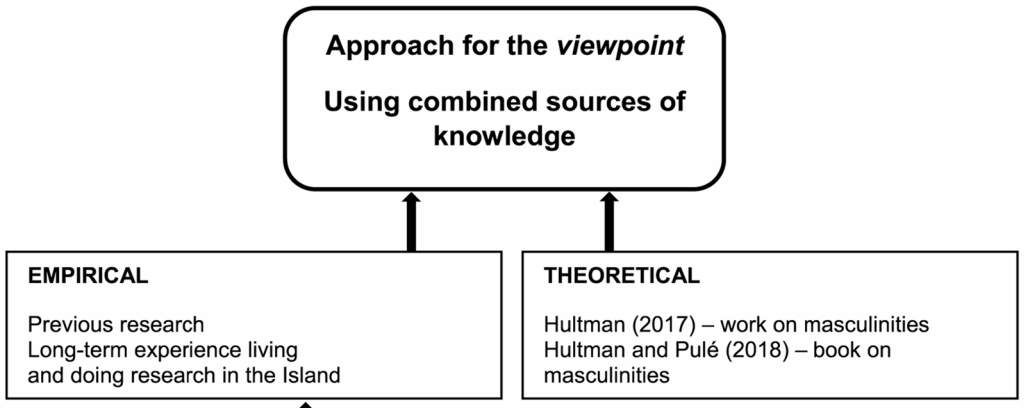
**Fig. 1** Schematic representation of the approach and sources of formal and experiential knowledge used for the masculinity analysis for Zanzibar

## Study area

Unguja is the largest island in the Zanzibar Archipelago, situated about 35 km off Tanzania's mainland coast. The island has historically been a hub for important trade routes between Africa, the Middle East, Asia and Europe. It is relatively small in size (about 1600 km$^2$; 85 km long and 30 km wide) but has long accessible coastal areas. The main port is situated in Zanzibar Town, the historical centre and melting point of different cultural influences ranging from the wider Swahili coast and other African countries. Persian, Arabic and European influences are also found. The coastal environment is incredibly rich with very high biodiversity levels. Zanzibar's seascape is represented by mangrove forests, seagrass beds and coral reefs, all of them dynamically connected and providing supporting ecosystems and valuable fishing grounds for the fishers working in all coastal villages in the Island (Richmond 1997). While Zanzibar's economy was to a large extent based on spices (e.g., cloves, cinnamon, nutmeg) and mangrove timber stock in the past it has changed during the last decades into a more diversified economy with clear influence from international markets and drivers. At present tourism is a key part of the economy providing about 25% to GDP about ten years ago (Lange 2015) and growing fast, according to the Zanzibar Presidential Delivery Bureau (www.pdbsmz.go.tz) tourism is nowadays about 30% direct contribution to GDP; while the total contribution of tourism can be as high as 85% (direct, indirect and induced). Taking advantage of the beautiful beaches and locations for diving and snorkelling the tourism industry has grown enormously during the last decades. Zanzibar's population is however, struggling to take advantage of the new economic developments, and the benefits from tourism have not always accrued to local people (Lange 2015). Population density is high with about 1.8 million people on the Island, and with a cultural heritage in maritime activities. Coastal and marine management is very important in the Island and about 20 years ago, the "Blueprint 2050" report launched the vision of the Island as one area surrounded with marine protected areas (Ruitenbeek et al. 2005). This vision has been developing and implemented since then with mixed results (Pike et al. 2024). Zanzibar like many other African locations is changing its identity from a more rural society to one fully integrated in the global web of trade transactions, demand from Western countries, international influences and trends in marine conservation and media/web hyperconnectivity.

## Male associated small-scale fisheries in Zanzibar

Fisheries and livelihoods along the coast have been at the heart of the Island's life and economic development (Jiddawi and Öhman 2002). Small-scale fisheries (near shore and performed with simple equipment, boats and gears) are central for Zanzibarians. The small-scale fishery is divided into fin-fish and invertebrate fisheries, being clearly gendered (Fröcklin et al. 2014; de la Torre-Castro et al. 2017). Men are dedicated to fin-fish and women to the collection of invertebrates (with the exception of octopus and sea




| Source | Method | Sample size | Villages sampled | Participants | Dates of data collection |
|---|---|---|---|---|---|
| de la Torre-Castro 2006 Ecology & Society | Semi-structured interviews, document analysis, participant observation, workshop information | 108 interviews<br>100 workshop participants | Uroa<br>Marumbi<br>Chwaka<br>Charawe | Male fishers<br>Female seaweed farmers<br>Key informants<br>Managers<br>Monitoring agents | 2002-2005 |
| de la Torre-Castro and Lindström 2010 Marine Policy | Semi-structured and open-ended interviews, participant observations and a review of written documents. | 242 | Pongwe, Uroa, Marumbi<br>Chwaka, Charawe<br>Ukongoroni, Michamvi | Male fishers<br>Female seaweed farmers<br>Monitoring agents<br>Key informants<br>Managers | 2002-2008 |
| Eriksson et al. 2010 Aquatic and living resources | Semi-structured interviews<br>Observation<br>Informal conversations<br>Policy analysis | 115 | Mkokotoni, Mazizini,<br>Fumba, Unguja Ukuu<br>Nungwi, Mtende, Uroa<br>Chwaka | Male fishers<br>Female collectors<br>Middlemen<br>Traders<br>Managers<br>Monitoring agents | 2007 |
| Eriksson et al. 2012 PLoS one | Focus-groups<br>In-depth interviews<br>Informal discussions<br>Observations<br>Boat monitoring | 7 Focus-groups<br>5 in-depth interviews<br>20 days observations and informal discussion in three villages | Mkokotoni, Mazizini,<br>Mtoni, Fumba, Matemwe,<br>Chwaka and Uroa | Sea cucumber fishers, middlemen, divers, monitoring agents and elder retired divers or fishers, key informants | 2009-2010 |
| Gustavsson et al. 2014 Marine Policy | Semi-structured interviews<br>Policy documents analysis | 133 | Chwaka<br>Marumbi<br>Uroa<br>Kiwenga<br>Pwani Mchangani | Male fishers<br>Female seaweed farmers<br>Hotel managers<br>Village local leaders<br>Monitoring agents | 2012 |
| Wallner-Hahn et al. 2016 Marine Policy | Semi-structured interviews<br>Observation of fishing activity, landing sites and markets | 85 | Mkokotoni<br>Kivunge<br>Kikungwi<br>Unguja Ukuu | Male fishers<br>Local Researchers<br>Managers<br>Monitoring agents | 2013 |
| de la Torre-Castro et al. 2017 Marine Policy | Focus-groups<br>Interviews<br>Observations<br>Diaries<br>Transects<br>Archive research<br>Policy analysis | 18 female focus groups<br>18 male focus groups<br>224 interviews<br>200 diaries<br>18 transects | Mkokotoni, Uroa<br>Marumbi, Chwaka<br>Paje, Mkokotoni | Male fishers<br>Women seaweed farmers<br>Men and women working along the seascape | 2008-2012 |
| Wallner-Hahn and de la Torre-Castro 2018 Marine Pollution Bulletin | Semi-structured interviews | 122 | Mkokotoni, Kivunge<br>Fukuchani, Kendwa<br>Unguja Ukuu, Uzi<br>Ngamb'a, Marumbi | Male fishers<br>Managers<br>Local Researchers | 2013 |
| Pike at al. 2022 Global Environmental Change | Household surveys | 400 | Nungwi, Tazari, Kidoti,<br>Fukuchani, Mkokotoni,<br>Bumbwini, Mangapwani,<br>Nyamanzi, Bweleo,<br>Fumba<br>Unguja Ukuu, Kizimkazi<br>Pongwe, Uroa, Marumbi<br>Chwaka, Michamvi,<br>Dongwe, Bwejuu, Paje<br>Jambiani, | Head of households<br>Both male and female | 2018-2020 |
| Pike et al. 2024 Ambio | Household surveys | 382 | Marumbi, Uroa, Unguja Ukuu, Bweleo, Kizimkazi Paje, Jambiani | Head of the households, both men and women | 2013/2014<br>2019/2020 |

cucumbers popular among men too) (Eriksson et al. 2010). The main gears found within the small-scale sector are: nets (mainly drag-nets/*nyavu*); basket-traps (*dema* traps); handlines (*mshipi*); and spears (sticks, spears and modern spearguns/*mkuki*). Zanzibar fisheries take place along all coasts of the island with more than 200 landing sites and about 32,000 fishers most of them being men (DFD 2020). Studies about masculinity in the marine realm are scarce, but a relatively recent workshop entitled "Watery Masculinities" part of the Octopints project studying octopus' closures in Zanzibar (https://octopints.wordpress.com), found out that when answering to the question *what does the word masculinity means to you*, the words given by fishermen were associated to negative aspects of being. These were: dominance, strength, ego, shame, guilt, toxicity, and repression. The organizers point out that much investigation is needed to understand these general perceptions and the way young divers, for example, relate to them (Veneroni 2021).

## Net fisheries

Net fisheries are very common and performed in groups with up to 15–20 members, locally called "companies" (de la Torre-Castro and Lindström 2010). They are controlled by a captain who in some cases owns the vessel, nets and outboard engine. In other cases, however, the captain hires the vessel, engine and other equipment from a person not personally engaged in the fishery. These individuals have been denoted as "middlemen" in the fishery chain (Crona et al. 2010). They normally live outside the villages, probably, in Zanzibar Town and they own and rent out their equipment. The middlemen have disproportionate power creating strong reciprocal agreements with fishers causing negative environmental consequences. The mechanism is that in order to afford the equipment, fishers are forced to overfish (Crona et al. 2010).

The technique used is to drag a large net across the sea floor (like a trawl) or in the open water encircling and enclosing the catch, pulling it up on the beach (a beach seine) or emptying it into a boat. Fishers swim in the sea to scare the fish into the net and enclose them. It thus requires the skill to swim and a lot of physical strength, also because they spend many hours in the water. This kind of fishery requires little ecological knowledge, if at all. It is not eco-friendly as it disrupts the bottom substrate and is non-selective, extracting fish of all species and sizes. The catch is auctioned at the local market where traders from Zanzibar town and business-related actors buy the highest quality species and sizes, and the catch remaining is taken home for consumption (locally known as "home pack").

This fishery is highly commercialized with a majority of the fish going into the market. Drag-net fishers are young people, either from the villages in which they fish or outsiders. It is easy to join since the technique does not require elaborated knowledge. Fishers enjoy the activity and the combination of being young, strong and fit gives them self-confidence. The use of motors, bigger boats and nets gives a sense of modernity. All these attributes recreate and form their identity as young, strong and modern. This characterization of net-fishers is shared by community members and the fishers who see themselves as forefront, strong and having the best fishing technology, or wanting to have it as these quotes illustrate "I want to put more efforts in fishing, bigger boat, bigger crew and we need a GPS"; "Fishers' situation will improve if we get modern larger gears". This masculinity is also expansionist and ambitious, "I will fish harder, the more I fish the more money I get. I will increase strength and be the owner of more gears". The words of the fishers show the value of hard body work, "The way ahead is only to work very, very hard"; "I am good with my net fishing, but I am still thinking how better use my strength". Net fisheries are illegal in Zanzibar when used as beach seines, to drag and destroy marine substrates and when using small-mesh sizes (stipulated in by-laws depending on the specific situation of the villages).

## Basket-trap fisheries

These are some of the oldest gears in the area. A traditional fishing gear and method used for centuries mainly around Unguja and Pemba. The traps are weaved by the fishers themselves using coastal forest fibres, they are normally hexagonal having a funnel mouth and constructed in many sizes, from very small of about 20 cm diameter, to really big ones of about 10 m. The traps are baited and placed on seagrass beds and/or corals where fish are abundant. They are left in place for several hours or overnight, after that they are retrieved.

As opposite to net fishers, basket-trap fishers do not need big crews to perform their activities. The groups consist of 1–3 fishers working together as family members (brothers or father and son) or in solitude. The captains are older and the activity is slower in character, navigating to the fishing ground often without motor, deploying the traps and waiting to collect. The equipment needed and physical strength needed is minimal. However, this type of fishery requires substantial ecological knowledge and navigation skills. Fishers rely on knowledge about ecosystems and associated species, channels and currents to know how, where and when to place the traps and what types of bait are needed to catch the targeted fish. Normally this complex knowledge is passed through generations and boys follow their fathers during fishing trips from early years. The following quotes show the importance of the family in this type of

fishery, "My son, in fishing and in friendship, is my support"; "My brother and I can help our situation together". Basket-trap fishers are facing challenges of new fishing methods; youth changing attitudes, dreams and aspirations and competition for ocean space due to tourism and aquaculture. Degradation of the marine environment, overfishing and unsustainable exploitation of coastal forests are also problematic. This gear is legal and faces severe conflicts with the net fishers, in addition to use illegal methods (dragging) and very small mesh sizes, net fishers infringe on basket-trap fishers' fishing grounds and belt the traps when dragging. As a fisher expressed "Illegal net fishing should be stopped!". Basket-trap fishery is considered sustainable; the only concern is when using very small traps that catch juveniles. Nevertheless, these types of traps are hardly ever used for professional practice; they are used as toys or as tourism souvenirs. The fish is of high quality since the fish it is not damaged with scars on the body and can go directly to the local markets, to larger markets in Zanzibar Town or to the hotels. Fishers always keep a portion of the catch for own consumption. All in all, this fishery is what could be called "high quality, slow fishing". These fisheries articulate elders, soft, slow, solitude and tradition, and may thus be seen as the opposite of net fisheries.

## Handline fisheries

Handlines are probably the most common gear in Zanzibar, basically everybody in the coastal zone who is a man (but also many women) have a handline as they are cheap compared to other gears. The techniques to use the handline are diverse but non-destructive; the catch is of varied quality and normally small. These fishers fish alone and take the catch as home pack (small portion of the catch for home consumption). The fishery is done from land or from a boat, being simple and meditative. Normally elders end up using this gear and contributing protein to the household. The ecological knowledge needed is also high. The catch has less market value and the fishery is more like an inherent part of coastal life. These fisheries articulate elders, but different to basket-traps handline fishers are not considered outdated. This gear is associated with old fishers who are highly respected; being an integral part of the community and traces of religiosity and/or spirituality can be found when talking to them, for example "Our Sir God will indicate what to do in the future, for now I am in silence in my village"; "I care most about the village and nature for the future". They also show a link from the individual self, family and community, considering the environment. They seem to be more inclusive and holistic in their conceptualization of the local reality. These quotes are indicative "I do my fishing, care for my animals and look after community"; "I help my wife and family with my fishing"; "The community needs togetherness and conservation lens". Their social engagement is also expressed in terms of participation in the villages' public life and affairs "I am a member of different organizations in the village; the social committee and the environmental committee" and their concern about community well-being and problems with other gears, "Nets are a problem for the community, there is less fish and price increases, poor people cannot afford fish anymore!".

## Spears (including divers)

Most types of spears for fishing are prohibited in Zanzibar, but still, they are very common (DFD 2020; Eriksson et al. 2010; 2012). Spear guns can be old and low quality but still functioning well, wooden sticks can be crafted by skilled people and be very efficient. Spear fishers are young to middle age men. They have good health to manage the fishing using their strength in lungs and body; as this quote shows "I used to be famous for my body when fishing, my lungs helped me with long time in the water". Spear fishers target specific high valued fish of big size. Fishing octopus and sea cucumbers with spear is very common and has high market value and demand (Eriksson et al. 2010, 2012). The equipment needed is relatively simple, but more specialized than traps and handline. They need the spear itself which can be very different in performance and construction, mask and tube, a float, line and in the best of circumstances a neoprene suit and fins. Particularly in the sea cucumber fishery scuba divers are found using old and insufficient equipment, e.g., single regulators, rusty tanks and no security devices. Spear catch is valuable in the market but the scars in the fish decrease the price. These fishers are highly dependent on others for access to boat transportation, and the quantity of fish they secure is relatively limited, resulting in smaller catches for household consumption. While they project an image of strength and modernity—particularly when equipped with spear guns—their practices often contravene legal frameworks, relying on prohibited gear and clandestine operations (Eriksson et al. 2012). Spear fishers typically work in solitude, operating as largely independent individuals. Health status is very important as this quote illustrates, "Nowadays, I have to travel longer to the deep-sea to catch the fish, good that I am healthy", "The only way to benefit my situation is to work harder and being fit". They are interested in modern gears "Government has to put efforts to alleviate poverty by giving loans without interest and up-dated modern equipment", "To make my situation better I need modern spear-guns or maybe also nets. I am fit for both". They are considered "lonely" fishers, very much related to the *modus operandi* of the fishery itself. At the same time, they are risk-takers by snorkelling or diving with

equipment in bad conditions or insufficient as well as considering dangers to their health as a normal situation. For example, many divers face daily light body paralysis, bleeding and headaches; still their perception is that these risks are normal (Eriksson et al. 2012).

## Analysis of masculinities

### Creating and recreating masculinity as working and living with the gear

Following the specific situation in Zanzibar, we ask how these types of small-scale fisheries are linked to masculinity, creating and recreating ways of being and behaviour while working and, in a sense, living with the gear; how this affects the conservation of the marine ecosystems which all fish production is dependent on. As other scholars have pointed out, masculinity in fisheries is highly related to the activity itself, depending on the fishery type, for example dealing with big boats and long times abroad creates particular masculinity expressions related to the hard labour in the sea (Clouette 2021) or different type of behaviours depending if the fishers are on sea or on land (Alonso 2022). Mobility and technology have also been highlighted as a key to masculinity expression (Gerrad 2013). In the case of Zanzibar, we argue that it is the gear and the *modus operandi* of the fishery with its particular technological, skills, knowledge requirements and social as well as physical attributes that seem to correlate with masculinity. The type of fishery and the gear used with its particular requirements, for example of strength, age or consideration of nature creates a type of person acting in particular ways vis- à-vis fish and ecosystems, there is a two-way correlation between gear and behaviour. But it also seems that age and life period characterize gear choice; a young net fisher can end up being a handline fisher when getting older. In Zanzibar's coastal communities, drag-net fisheries represent modernity, youthfulness and strength, while basket-trap fishers are the opposite i.e., old-fashioned and slow. Handline is associated with respectable elders; spears, especially spear guns are associated with young and healthy fishers, performing illegal activities and thus, having no particular high status.

If men with certain characteristics choose gears accordingly, or if the gear shapes masculinity is uncertain. The choice of gear can be complex depending on father's own use, age and economic possibilities; however, once the gear is used, behaviour has to be necessary adapted to that particular way of fishing. The institutions associated with each gear type and forms of fishing are multifaceted, having different regulatory frameworks, norms and cultural values (de la Torre-Castro and Lindström 2010). There is an interplay between the views of the fishermen vis-à-vis their own fishery and other types of fisheries. There is also a differentiation of views that seems to change with age.

### Alienation from nature and commercialization

The fishery in Zanzibar, an ever-existing activity in the Island, is subjected to strong and important external drivers. The fish market is driven by multi-scale demands that range from local needs and village restaurants to international tourism industries and the need to export high quality fish (Thyresson et al. 2013; O'Neill and Crona 2017). Most fishers have been pushed to participate and handle the market and the new demands. Different fisheries, with their gears and associated masculinities offer different products of varying quality for these new markets. The market data indicates that basket-trap fishers are the primary economic beneficiaries, while spear fishers benefit but to a lesser extent. Net fishers, however, have not benefitted due to their big group size and type of catches. Net fishers can, occasionally, get very large catches with extremely high monetary value, but in a daily basis they earn less than other fishers (de la Torre-Castro and Lindström 2010, de la Torre-Castro et al. 2014; Wallner-Hahn et al. 2016; Rehren et al. 2018). Handline is basically marginal to the market. There is no correlation between being young and strong with obtaining the best monetary returns. Fish produced by trap fishers is very good for restaurants and tourism as the fish length is perfect for plate size and the species targeted are popular (e.g., mid-size emperors and snappers). Obviously, these facts affect poverty and income (Lange and Jiddawi 2009) and empirical studies have shown that basket-trap fishers (although considered old-fashioned) are economically better-off (de la Torre-Castro and Lindström 2010, Rehren et al. 2018).

The commercialization and commodification of fisheries articulated with net fisheries entail an alienation from nature and ecology. The role of the middlemen in the system creates incentives that reinforces this alienation. It is argued that due to them there is a serious disconnection between fishers and ecosystems dynamics and thus important barriers for the development of sustainable fisheries (Crona et al. 2010). The indiscriminate "catch all that swim" approach and "the big catch dream" make knowledge of fish ecology redundant, and net fishers become alienated from nature. As separation from nature increases and other values—such as friendship, aspirations of wealth, and displays of strength and vitality—gain prominence, incentives to care for sustainability diminish. Note that drag-net fishers have expressed a willingness to change to better gears, but they cannot afford them due to their poor economic condition (Wallner-Hahn et al. 2016, 2018). A similar situation is faced by spear fishers. Spear fishers target the largest and

most valuable individual fish causing disruptions in the fish web by removing large individuals. Basket-trap fishers, on the other hand, need knowledge about fish ecology, fishing grounds and the geophysical environment including bathymetry, currents, waves and tides. So, while net fishers have become alienated from nature; basket-trap fishers are in constant interaction with nature and they are conscious of the value maintaining productive ecosystems for a healthy fishery (de la Torre-Castro and Lindström 2010; Wallner-Hahn et al. 2016; Rehren et al. 2018). Handline fishers have a deep contact with nature too. In many cases when the fishers are very old, they go fishing just for recreation and pure enjoyment, spending time in the ocean in a calm, meditative way. The actual catch is less important than the link to nature and the whole fishing experience; in this case the fishery value falls into the cultural and social domains, "Hello! I am back now! I enjoyed it (fishing) so much!".

### The gear-masculinity nexus and environmental effects

As discussed above, different fishing gears are associated with distinct practices and behaviours, which in turn produce varying impacts on the marine environment. Nets, in particular, have severe negative effects on both the seabed and fish populations. When dragged, they damage seagrass beds, mudflats, and corals, while also capturing fish indiscriminately. Minimum size limits and species selectivity are often disregarded, as all catches are brought onboard, with widespread non-compliance regarding mesh-size regulations. At the same time, the physical effort and cooperation required by fishers foster a sense of solidarity and satisfaction—factors that often outweigh formal regulations, sanctions, or even potential income losses (de la Torre-Castro and Lindström 2010). This type of masculinity builds a positive feedback reinforcing marine exploitation. The loop is maintained by very strong institutions and it is extremely difficult to break and change the direction. New comers entering the fishery system aspire to be part of net companies and not to work with other gears, because is so easy; while many others would like but cannot afford changing gears (Wallner-Hahn et al. 2016, 2018).

When it comes to spear, the gear causes a lot of environmental damage by targeting the largest individuals, this affects reproduction patterns, and might damage coral substrate. Handline is marginal in its environmental effects. The following table show the key features of small-scale fishers in Zanzibar (Table 1).

Basket-trap fishers exemplify sustainable practices, as they can selectively target species by choosing both the bait and the location of the traps. The size of the catch is further regulated through the use of traps of different dimensions. Unlike nets, basket-traps do not damage the seabed or fish populations, and the pace of exploitation remains controlled and gradual. However, these sustainable attributes stand in contrast to the "hard modern" ideals of masculinity that many young men aspire to embody. The lifestyle associated with basket-trap fishing does not align with their aspirations. This creates a tension between masculinity and social status: on one hand, basket-trap fishers are perceived as old-fashioned and outdated in their methods; on the other, they often enjoy strong economic positions. Indeed, many are able to maintain two households, a culturally significant marker of higher status. Furthermore, their deep ecological knowledge is widely recognized within the community. Together, these dynamics illustrate the complex interplay of sustainability, culture, and social identity within the fishing system.

## Ideal types of masculinities

### Linking masculinities in the small-scale fishery to Hultman and Pulé (2018)

Based on the analysis above, although each gear is particular, two broad types of masculinities emerge, one that is "soft", more attentive to the environment and less damaging; and one that is "hard", less attentive to the environment and more damaging. Net and spear fishers can be placed in the category of "hard" masculinity as their behavioural attributes indicate and the environmental consequences of their fishing are negative (see Table 1). This type of masculinities is related to the ideal types of industrial and breadwinner categories. One key issue is that the ideal types of Hultman and Pulé (2018), are linked to the Fordism way of production, to industrialization processes and to high oil and fuel consumption. Industrial masculinity includes the owners of the means of production referring to new manufacture companies, owned business and equipment, etc. In net fisheries, the owners of equipment and boats are akin to this industrial masculinity since they own the means of production and profit from them. While crew members or opportunistic fishers just jumping into the activity are akin to the breadwinners. In terms of energy and oil consumption, net fisheries are the highest consumers, following as well the industrial masculinity type. Spears also fall in the industrial type, owning the means of production, but they show an entrepreneurship side as they take care of their business alone.

On the other hand, basket-trap and handline fishers resemble the ecomodern and ecological types of masculinity. Basket-trap fishers and handliners share many characteristics, for example their deep ecological knowledge, the calm way

**Table 1** Key attributes of different gear types in small-scale fisheries in Zanzibar (Unguja Island, Tanzania). For a comprehensive analysis of the regulative, normative and cultural-cognitive institutions related to fisheries in Zanzibar see de la Torre-Castro and Lindström 2010

| GEAR | Ways of fishing | Norms | Behaviour | Environmental effects |
|---|---|---|---|---|
| Drag-nets | Big groups<br>Motorized<br>Often two boats needed<br>Drag-technique | Nets are good<br>Modern<br>Desirable<br>Non-compliance with mesh sizes and techniques (Illegal) | Exploitative<br>Expansionist<br>Promotes friendship, comradeship and male bonding<br>Hard and fast (requires a lot of physical strength) | Negative on substrate (seagrasses, corals) and on fish population<br>Indiscriminate fishing |
| Basket-trap | Small groups<br>Not motorized<br>Simple boat needed<br>Controlled by bait and size selection<br>Choose place to put the traps | Sustainable<br>Traditional value<br>Deep local ecological knowledge<br>(Legal) | High awareness and observation of the marine environment<br>Strong family ties<br>Soft and slow<br>Knowledge passes through generations<br>Respect tradition | No negative effects<br>Highly sustainable (The only exception is very small traps catching juveniles, that are seldom use professionally (DFD, 2020)). |
| Handline | Alone<br>Meditative<br>Opportunistic catch<br>No boats or simple boat needed | Community citizen<br>Acceptance of age<br>Cooperation for food security<br>(Legal) | Caring of the marine environment, family and the community<br>Soft and slow<br>Lonely<br>Meditative<br>Religious | No negative effects<br>Performed in small-scale<br>Predominantly non-commercial |
| Spear | Alone<br>Needs more specialized gear<br>Target specific species and sizes<br>Health is important<br>Dependent on others for transport | Non-compliance is justified by the need for work and having a livelihood<br>Values good health, strength and youthfulness<br>(Illegal) | High risk taker<br>Concerned about health and body<br>Independent when fishing and selling, but dependent on others for transport<br>Stays on his own | Negative effects due to the high gear selectivity on fish type and size<br>Removal of adult fish needed for healthy demographic populations and further reproduction<br>May damage the marine substrate, especially hard corals |

of fishing, the importance given to the family, etc. But there are some differences as well. Basket-trap fishers are clearly part of new markets; with the advantage of selling direct to hotels and restaurants (due to the quality and size of their fish); while handliners are not (their catch is predominantly taken home). Another difference is that basket-trap fishers mainly see their activities as work to make a living, while handliners fish also for pleasure. Although fishing with baskets is slow, the meditative and recreational elements found in handline fishing are absent. Accordingly, basket-trap fishers are closer to the ecomodern ideal type, in which the consciousness for nature and environment is important, but they act and function within the normal boundaries of society, they do not challenge. These fishers are very well adapted to markets and tourism demands. They even craft souvenirs for tourists (mini traps, traps as lamps, etc.). Handline fishers are more akin to the ecological ideal type. The main reason for this is that their general perceptions are very considerate towards the environment; they show a holistic thinking and an attitude in which community and environment are seen as a whole. When they depict the future, environmental sustainability and community well-being are key elements considered. Nevertheless, none of the masculinity types found here were radical enough in the sense of questioning the capitalist system, the mode of exploitation and the use of fossil fuels.

Note that Hultman and Pulé (2018) explain ideal types as overlapping and fluid, not fixed and static. Ideal types can be fruitful as analytical concepts, but also need to be adjusted and developed when new empirical studies are carried out in new contexts, like in this case. Here, while not seeking for a perfect fit between the ideal types and the fishers; there are many elements in the typology that are valuable to understand masculinity related to fishing. The classification was useful and helpful to expand and understand masculinities in the fishery system. This *viewpoint* article aimed to understand the links between the fishing activities, the gears used and their significance for both masculinity and the environment. In Zanzibar, we find critical tensions or dissonances between the ways of fishing and the effects of masculinity for the environment and the fishery itself. In the Western context the influence of industrialism and capitalism are strong shaping factors for the industrial/breadwinner masculinity, while modernism and liberalism shape the

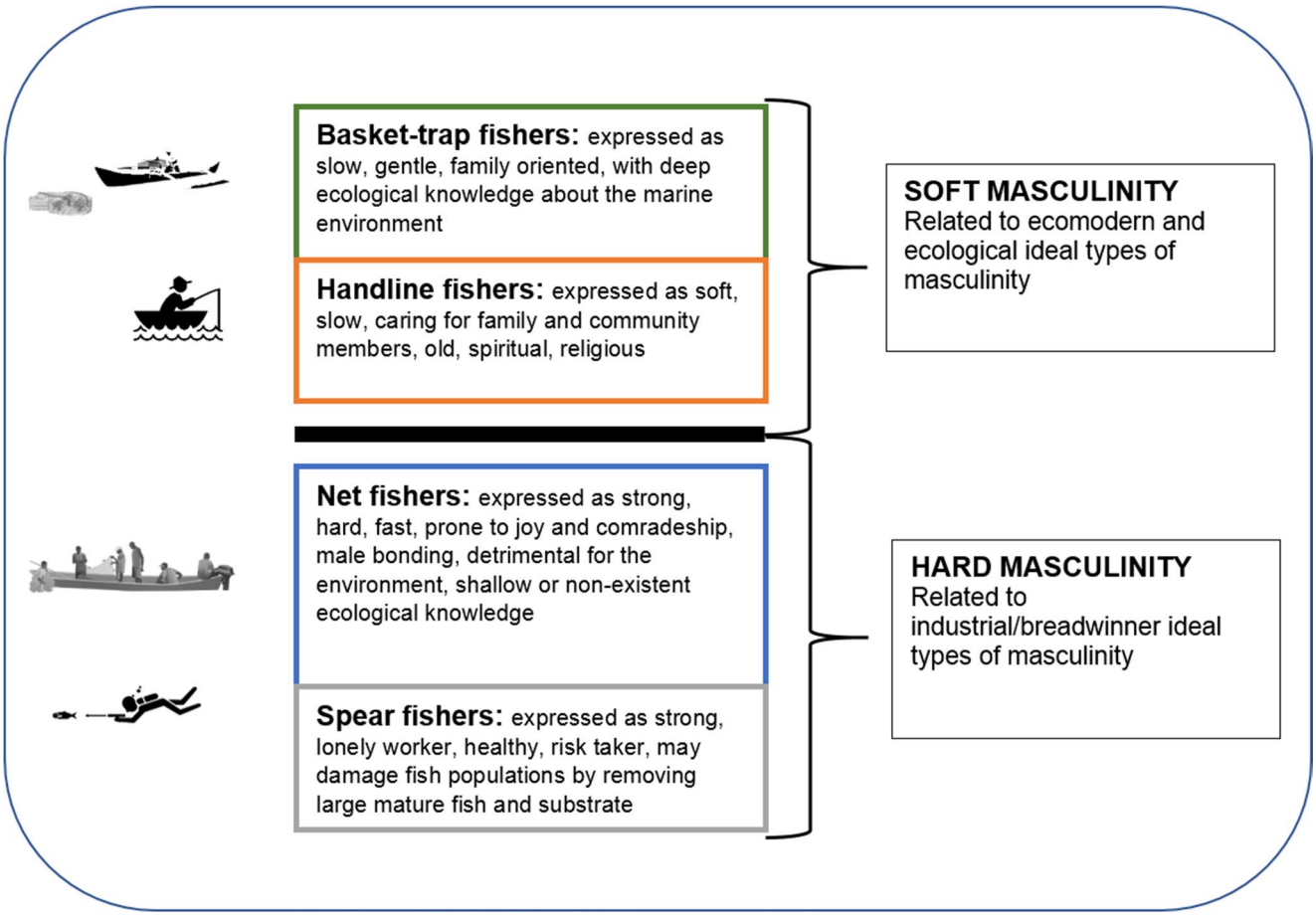



**Fig. 2** Gear-masculinity correlation in the small-scale fishery system in Zanzibar. The gears, the masculinity classifications and the key masculinities attributes are shown; as well as the correspondence with Hultman (2017) and Hultman and Pulé (2018) classification of *industrial/breadwinner*, *ecomodern* and *ecological* masculinities

ecomodern masculinity. In the Zanzibarian context the historical elements are present but they articulate differently. For the "soft" pro-environment masculinity, traditional values and local ecological knowledge are the primary shaping factors. For the less environmentally friendly masculinity it is market, globalization and lack of alternative livelihoods. Zanzibar masculinities appear to be complex; some societal changes are very slow (e.g., changes in cultural institutions), while others fast (e.g., effects of external actors). Also, in terms of space, masculinities co-exist and overlap using fishing areas. Basket-trap fishers are not detached from markets, to the contrary they embrace new market demands. And net fishers are not completely isolated from tradition. Another important finding is that masculinity seems to be related to age. Young and strong people fall in the "hard" type of masculinity (this is also found in Eriksson et al. 2010 and 2012; and Veneroni 2021); while middle age fishers, in the soft masculinity; and the older fishers are closer to the ecological type of masculinity. It is also possible that along a whole life-history fishers change gears and thus they experience different ways of fishing, and how to be a man during their life. Figure 2 below illustrates the masculinities found in the study in relation to Hultman (2017) and Hultman and Pulé (2018).

## Ideas for the future

In the section above we show that using a classification of masculinities in a new and different context was useful. However, the question of what would be a masculinity ahead, one that is socially and ecologically desirable, remains. In Zanzibar, as well as in the Western world a new kind of masculinity is needed, particularly for those embracing hard and strong behaviours. One that is more inclusive, more attentive and self-reflecting and more environmentally friendly. To promote a more reflective behaviour among fishers and their own role for achieving sustainability and social well-being would be an important step. Hultman and Pulé (2018) present a model to promote ecological masculinities as a step ahead from industrial/breadwinners and ecomodern types. The ecological masculinity entails caring for the environment, society and non-human beings.

To promote such masculinity is obviously a major societal task, but we share the proposed model as a potential way to make a difference. The model is called ADAM-n (The new Adam as opposed to the archetypical biblical one) and contains five precepts to facilitate ecological masculinities. It is not the objective of this work to develop the ADAM-n model, but we present the five precepts here as food for thought for further development. A, stands for *awareness*, self-awareness and awareness about important societal issues; D means *deconstruction*, the authors propose here that men engage with a deep analysis of what are the drivers of extractive industries, what are the social and environmental consequences? The next A refers to *amendment*, when being more conscious about the self and the consequences of own actions, follows the question: what changes can be done to create a better situation? Finally, M is for *modification*, bringing all the previous insights together, getting more consciousness about the environment, justice and one's role in the system and the state of things, the message is to go on and modify, be a different self in all aspects i.e., the way of thinking, the way of talking, and the way of acting. In the authors words: "Support greater care for all others and yourself – simultaneously" (Hultman and Pulé 2018). This model is designed with Western societies in mind in which individualism and personal responsibility is the norm. In the context of Zanzibar and for the management of small-scale fisheries adaptations are necessary. To be fruitful, cultural aspects have to be acknowledged as well as Zanzibar's integration into global markets and the growing international tourism. At local scales, the lack of livelihood alternatives, poverty, poor social services and infrastructure. It has been argued that conceptualizations that apply for Western societies are not fruitful for African contexts (Mfecane 2024). However, for this case, the typology was a functional entry point to analyze masculinities in Zanzibar. It helped to organize and categorize the material, further the focus on historical, ecological and behavioural aspects was very relevant, the approach contrasting two different contexts was valuable too, as it was easy to identify the similarities and differences found in the North and South. Based on this experience, further work using the ideas and frameworks presented in this *viewpoint* might contribute in advancing knowledge about masculinities for sustainability. In the short to medium term these ideas seem to be most useful in terms of analysis by social researchers, and also potentially for community level work by development practitioners, along the lines of gender transformative approaches championed by WorldFish, FAO and others. Passing the first research phase and having a practical management orientation in mind, the ADAM-n process of reflection can be done in collaboration with fisheries and/or environmental managers promoting discussions and reflection exercises as part of the already established co-management schemes. Especial collaboration can be established with elder fishers using handlines as facilitators or key actors in the process. Elder fishers have the advantage of being highly respected and having a soft masculinity. Other instruments such as presentation of theatre plays (Campos and Figueira 2019; Bubeck et al. 2024) or story telling (Lowery et al. 2020) can be useful to initiate the participative process. Even if the ADAM-n model is perhaps too individualistic for this context, adaptation is possible and worth a try. Zanzibar has the human capital and previous experiences in co-management to be able to drive the proposed learning experience. Behavioural changes are complex and can be triggered by many factors, however changes must be first internalized by fishers. Working with the ADAM-n model could be a way of ground-truthing the masculinity ideal types discussed here. This is very important as the *viewpoint* presents the researchers' analysis (anchored in experience and formal knowledge), but for real life applications men and communities have to be actively involved. The exercise then can be a way of learning, a way of listening to the voices of the fishers and an avenue to build upon their own opinions, views and characterizations of masculinity. Further, building these deeper layers of knowledge, masculinity aspects can be linked to wider societal issues and not only fisheries and environment. This *viewpoint* limits to the links between gear-behaviour-masculinity -environment. However, an understanding of masculinity and gender in a wider societal perspective is essential.

## Conclusions

Small-scale fisheries are key activities in Zanzibar and researchers found that masculinities can be associated with gear use, which are deeply interrelated with norms, behaviours and environmental impacts. Using Hultman's (2017) and Hultman and Pulé's (2018) typology of masculinities, two ideal types of masculinity were found: (1) A "soft" masculinity associated with tradition, a gentle and slow way of being and high consciousness about the marine environment with low environmental impacts which relates to Hultman's conceptualization of ecomodern and ecological masculinities, and (2) A "hard" masculinity associated with strength, speed and negative environmental impacts, which is akin to the industrial/breadwinner masculinities found in the North (for case studies in the Global South see Pulé and Hultman 2021). As a first step to continue learning about masculinity and link to wider gender issues, a process of research and further self-reflection anchored in the context is suggested to spark the process. This analysis illustrates how fisheries, way of fishing and masculinities relate to each other and

are critical for the marine environment and the fish stocks impacting the whole state of the fishery, therefore the study of masculinity in the context of fisheries is a key element that MUST be considered.

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