# Fostering Gender-Responsive Action: An Intersectional Perspective for the **CREAF project**

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**Fostering Gender-Responsive Action: An Intersectional Perspective for the CREAF project**

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**Authors**
Isabel Díaz Reviriego and Irene Iniesta Arandia
Fractal Collective
info@colectivofractal.org
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Website: www. eastatlanticflyway.org

# Executive Summary

This report provides an intersectional gender analysis to support the CREAF project's alignment with the IKI Gender Strategy and to strengthen its gender-responsive approach to climate resilience and wetland conservation along the East Atlantic Flyway. Building on the six dimensions of the IKI Gender Guidelines, the analysis draws on scientific literature, Indigenous and Local Knowledge (ILK), and case studies from three core implementation sites—the Banc d'Arguin (Mauritania), the Saloum Delta (Senegal), and the Bijagós Archipelago (Guinea-Bissau)—as well as comparative insights from other flyway countries.

The findings show that gender inequalities in coastal wetlands are shaped by overlapping factors including age, ethnicity, socio-economic status, migration, livelihood roles, and customary governance systems. Women, particularly those engaged in shellfish harvesting, processing, and fish value chains, play a central role in food security, livelihoods, biodiversity stewardship, and climate adaptation. However, their knowledge, labour, and leadership remain undervalued in formal conservation governance, benefit-sharing mechanisms, and climate policies.

Across the three sites, protected areas, mangrove restoration, and climate mitigation initiatives (including reforestation and carbon-focused policies) have sometimes generated social tensions and gender-differentiated impacts for local communities. These tensions can arise when interventions overlook local tenure systems, informal institutions, and everyday resource users. Symbolic participation, unequal access to benefits, and the marginalisation of local and gendered knowledge emerge as key risks that can undermine both conservation effectiveness and social equity.

The report reviews the CREAF Gender Action Plan and identifies opportunities to strengthen its intersectional responsiveness. Current approaches often treat focus on "women" as a single category and emphasise numerical participation, rather than addressing the underlying power relations that shape in decision-making and access to resources. The report highlights the importance of moving beyond representation toward shared decision-making power, equitable benefit distribution, and context-specific capacity building that reflects diverse constraints and opportunities.

By embedding intersectional gender analysis across project activities, monitoring, and learning processes, CREAF can enhance the legitimacy, inclusiveness, and long-term effectiveness of its conservation and climate resilience interventions. Doing so positions the project as a contributor to IKI's broader goals of gender-just, socially grounded, and transformative climate and biodiversity action along the East Atlantic Flyway.

## Key messages

**1. INTERSECTIONALITY IS ESSENTIAL**
Gender interacts with age, class, ethnicity, migration background, and livelihoods, shaping who benefits from and who bears the costs of conservation and climate action.

**2. WOMEN ARE KEY ACTORS, NOT ONLY BENEFICIARIES**
Their ecological knowledge and labour underpin wetland conservation, food security, and climate resilience.

**3. PARTICIPATION MUST TRANSLATE INTO POWER**
Numerical inclusion alone is insufficient without real influence over decisions and resources.

**4. IGNORING LOCAL GOVERNANCE CREATES RISKS**
Conservation and climate policies can exacerbate inequalities if customary institutions and local knowledge are overlooked.

**5. GENDER-RESPONSIVE ACTION STRENGTHENS CONSERVATION OUTCOMES**
Intersectional approaches improve both social justice and biodiversity conservation.

**6. PEOPLE–WATERBIRD RELATIONS ARE UNDERSTUDIED**
Intersectional research can strengthen both bird conservation and inclusive, locally grounded outcomes.

**7. CREAF CAN LEAD BY EXAMPLE WITHIN IKI**
Embedding intersectional gender learning and monitoring can generate transferable good practice for IKI-funded projects.

# Table of contents

**1. Introduction p. 06**

1.1 Framework ..... p. 07

**2. Intersectionality, climate change resilience and wetlands conservation p. 09**

2.1 What is Intersectionality? p. 09

**3. Intersectional inequalities at three key sites p. 13**

3.1 Rights, policies and socio-economic status: Protected areas, governance and livelihoods ..... p. 14

3.2 Norms and values: customary governance and gender stereotypes ..... p. 18

3.3 Roles and responsibilities: relations and practices shaping local knowledge, care practices and wetland conservation ..... p. 19

3.4 Resources: opportunities, capacities and decision-making power ..... p. 23

3.5 Representation: Participation, leadership and governance ..... p. 24

3.6 Climate change and biodiversity: differential climate impacts, vulnerabilities and everyday adaptation ..... p. 25

**4. Building on intersectional gender approaches in the CREAF project p. 30**

4.1 Opportunities to further strengthen the intersectional perspective of the Gender Action Plan ..... p. 31

4.2 Opportunities for further knowledge development and promoting gender justice ..... p. 32

# 1. Introduction

This report provides an intersectional gender analysis to support the Climate Resilient East Atlantic Flyway (CREAF) project. It aims to strengthen the project's alignment with the IKI Gender Strategy and its gender-responsive approach to climate resilience and biodiversity conservation. A gender-responsive approach **recognises unequal gender roles, relations, and norms and attempts to actively combat them**. The project consortium brings together individuals and organisations from European and African countries along the East Atlantic Flyway. Core implementation sites are the Banc d'Arguin in Mauritania, the Saloum Delta in Senegal, and the Bijagós Archipelago in Guinea-Bissau. Activities are also carried out across eight additional countries spanning the flyway from north to south: Morocco, Guinea, Sierra Leone, Ghana, Nigeria, Angola, Namibia, and South Africa.

This report serves as a reference for the CREAF consortium, offering insights into local-level gender dynamics to support partners in applying a gender-responsive approach throughout project activities. Consortium partners may engage with it in ways that suit their roles, interests and capacities—either by reading it in full to gain a comprehensive understanding of the issues addressed, or by using the table of contents to navigate directly to sections of particular relevance for a more targeted and interactive use. It is primarily aimed at:

**1)** partner organisation and work package leaders, as well as CREAF focal points involved in project implementation; and
**2)** other consortium members interested in strengthening the integration of gender and intersectionality into their daily work.

# 1.1 Framework

This report is grounded in **a review of existing literature on West-African wetlands, small-scale fisheries as well as case studies** at the core implementation sites, rather than relying solely on national-level indicators. This approach makes it possible to capture how gender relations are shaped by specific local contexts and how they change over time. Gender relations are not the same everywhere and can be contested. The approach also recognises the importance of Indigenous and local knowledge (ILK), including community experience and observations, in understanding environmental change and social dynamics.

Gender **indicators at a national, regional and community level are not necessarily correlated**. For example, while Sweden is often presented as a forerunner in gender politics, ranking the 4th country on the Global Gender Gap Index, its forest sector that features prominently in Sweden's climate strategy, remains one of the most gender-segregated sectors in the country[1]. This illustrates why looking at local contexts is crucial for understanding the real dynamics of gender relations in practice.

The case study approach **weaves both scientific knowledge and Indigenous and Local Knowledge (ILK)**. Global biodiversity frameworks increasingly recognise the value of ILK in the management and governance of social-ecological systems. For example, the **Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) highlights Indigenous and local contributions to the conservation and sustainable use of biodiversity and ecosystems** as one of its core principles[2]. The **Kunming-Montreal Global Biodiversity Framework (GBF)** adopted under the Convention on Biological Diversity in 2022, also **encourages the inclusion of diverse Indigenous worldviews and gendered knowledge and practices** that are closely linked to ecosystems, land, seas, kinship and cultural practices[3].

Similarly, the **Ramsar Convention** (1971) emphasises the importance of **integrating cultural, spiritual and traditional knowledge in wetland management**. In Africa, Indigenous knowledge systems offer deep, longstanding understandings of care for aquatic ecosystems and non-human species[4]. Conservation experts also highlight that effective and fair conservation initiatives can benefit from engaging with **African scholarship and knowledge systems, recognising colonial histories and valuing**

1 Ville, Alizée, et al. "What is the 'problem'of gender inequality represented to be in the Swedish forest sector?." Environmental Science & Policy 140 (2023): 46-55.

2 A cumulative body of knowledge, practice and belief, evolving by adaptive processes and handed down through generations by cultural transmission, about the relationship of living beings (including humans) with one another and with their environment. It is also referred to by other terms such as: indigenous, local or traditional knowledge; traditional ecological/environmental knowledge; farmers' or fishers' knowledge; ethnoscience; indigenous science; folk science. https://www.ipbes.net/glossary-tag/indigenous-and-local-knowledge. In this report, we use these diverse terms interchangeably.

3 Schröter, Matthias, et al. "Science on ecosystems and people to support the Kunming-Montreal Global Biodiversity Framework." Ecosystems and People 19.1 (2023): 2220913.

4 Obiero, Kevin O., et al. "Bridging Indigenous and non-Indigenous knowledge systems and practices for sustainable management of aquatic resources from East to West Africa." Journal of Great Lakes Research 49 (2023): S128-S137.

**practices that have sustained ecosystems over generations**, underscoring the need for more integrated and culturally grounded conservation approaches[5].

**The analysis is guided by an intersectional approach to gender**, recognising that people's experiences of climate change and wetland degradation are shaped by multiple, overlapping factors beyond gender including age, ethnicity, wealth, marital status, migration background, and livelihood roles. These intersecting factors influence access to and control over resources, exposure to environmental risks, whose knowledge is recognised in conservation planning, and who can participate meaningfully in decision-making.

**Rooted in Black feminist thought, intersectionality emphasises that women and men are not homogeneous groups but have differing vulnerabilities, responsibilities, and power**. Understanding these dynamics is essential for designing interventions that are both socially just and effective. By applying an intersectional lens, **this report seeks to identify inequalities, highlight diverse capacities and knowledge systems, and propose pathways toward more inclusive and equitable conservation outcomes within CREAF**. Growing evidence also highlights the need for approaches, tools, and methods that explicitly address intersectional inequalities and deeply entrenched gender norms in wetland landscapes and small-scale fisheries [6,7,8,9].

Finally, the **analysis is structured around the six dimensions recommended in the IKI Gender Guidelines for Gender Analysis:**

**1)** Rights, Policies and Socio-Economic Status;
**2)** Norms and Values;
**3)** Roles and Responsibilities;
**4)** Resources;
**5)** Representation; and
**6)** Climate change and biodiversity.

5 Sène, Aby L. «A reflection on imperialism in nature conservation from African conceptions of care.» Environmental Communication 18.1-2 (2024): 15-20.Sène, Aby L. «Towards an African Epistemic Site for Biodiversity Conservation and Climate Action.» Confronting Climate Coloniality. Routledge, 2024. 109-120.

6 Kleiber, Danika, et al. "Promoting gender equity and equality through the small-scale fisheries guidelines: experiences from multiple case studies." The small-scale fisheries guidelines: global implementation. Cham: Springer International Publishing, 2017. 737-759.

7 Galappaththi, Madu, et al. "Linking social wellbeing and intersectionality to understand gender relations in dried fish value chains." Maritime Studies 20.4 (2021): 355-370.

8 Joshi, Deepa, et al. "Ramsar Convention and the wise use of wetlands: rethinking inclusion." Ecological Restoration 39.1-2 (2021): 36-44.

9 Rice, Emma D., et al. "The future of gender research in small-scale fisheries: Priorities and pathways for advancing gender equity." Fish and Fisheries 25.3 (2024): 401-408.

# 2. Intersectionality, climate change resilience and wetlands conservation

## 2.1 What is Intersectionality?

Every person occupies multiple axes of inequality—such as gender, age, origin, skin colour, and economic status—that together shape unique experiences. Intersectionality considers both privilege and oppression, showing how different combinations of positions interact rather than simply add up. Context and place also influence how these inequalities are lived, therefore, understanding embodied experiences can inform more effective, context-sensitive actions (Box 1).

Applying an intersectional lens in practice requires careful, ethical choices about which inequalities to focus on. It is most effective when broader histories, including racial and colonial power dynamics are addressed from the start. This means valuing local knowledge, working collaboratively, and practicing ongoing reflexivity to ensure that analyses and actions truly reflect the diverse realities of the people involved [10,11,12,13].

**Box 1**

A simple way to think about intersectionality is through the basket of apples metaphor: each apple has its own mix of colour, size, and shape, and you can't understand it fully by looking at only one characteristic [14]. Similarly, intersectionality helps us see the full picture of how overlapping identities influence people's opportunities, challenges, and needs in conservation contexts.

Illustration by Cristina Zafra. Included in Coll-Planas, G., M. Rodó-Zárate, and G. García-Romeral. "Miradas poliédricas. Guía para la aplicación de la interseccionalidad en la prevención de violencias de género con jóvenes." Barcelona. UVic-UCC (2021)

10 Iniesta-Arandia, Irene, and Federica Ravera. "Opening Editorial: The contested nature of climate change: Feminist and decolonial perspectives for transformative adaptation." *Environmental Science & Policy* (2025): 104082.

11 Díaz-Reviriego, Isabel, et al. "Disentangling gender and social difference for just and transformative biocultural approaches." *People and Nature* 6.4 (2024): 1394-1406.

12 Chaudhury, Aadita, and Sheila Colla. "Next steps in dismantling discrimination: Lessons from ecology and conservation science." *Conservation Letters* 14.2 (2021): e12774.

13 Trisos, Christopher H., Jess Auerbach, and Madhusudan Katti. "Decoloniality and anti-oppressive practices for a more ethical ecology." *Nature Ecology & Evolution* 5.9 (2021): 1205-1212.

14 Rodó-Zárate, Maria, and Marta Jorba. "Metaphors of Intersectionality: Framing the Debate with a New Image." (2020).

**Climate change research has often focused on women's vulnerability, reducing gender analysis to a simple comparison between women and men**. This can hide the complex power dynamics that shape people's experiences, including axes of differentiation like race, caste, age and class[15,16]. Such a narrow focus can reinforce stereotypes and colonial logics[17,18] while overlooking how climate policies or development programs may contribute to this produced vulnerability by propelling strategies that have unintended or counterproductive consequences[19] (Table 1).

For example, in Northern Mali, women have developed adaptive strategies like charcoal production, but upper-class women are often discouraged from these activities to diversify their livelihoods because it is perceived as an activity 'beneath them'[20]. In this case, an intersectional perspective helps capture these nuances, showing that vulnerability is not the same for all women and that **understanding local social hierarchies is essential to prevent perpetuating gender stereotypes** like assuming poorer women are always more vulnerable, which overlooks agency and locally grounded coping strategies.

**Table 1. Common gender stereotypes and assumptions reproduced in climate change studies and alternative intersectional narratives[21,22,23].**

| Stereotyping narratives | Intersectional narratives |
|---|---|
| Women are a unitary group | Women are diverse; intersectional factors like race, class, and migration status influence experiences and capacities |
| Women are inherently more vulnerable to climate change | Vulnerability depends on context; class, age, ethnicity, and livelihood shape who is most at risk |

15 Djoudi, Houria, et al. "Beyond dichotomies: Gender and intersecting inequalities in climate change studies." *Ambio* 45.Suppl 3 (2016): 248-262.

16 Thompson-Hall, Mary, Edward R. Carr, and Unai Pascual. "Enhancing and expanding intersectional research for climate change adaptation in agrarian settings." *Ambio* 45.Suppl 3 (2016): 373-382.

17 Resurrección, Bernadette P. "Colonial erasures in gender and climate change solutions." *Wiley Interdisciplinary Reviews: Climate Change* 15.5 (2024): e890.

18 Weatherill, Charlotte Kate. "Resisting climate change vulnerability: feminist and decolonial insights." *International Politics* 61.4 (2024): 661-682.

19 Lau, Jacqueline D., et al. "Gender equality in climate policy and practice hindered by assumptions." Nature climate change 11.3 (2021): 186-192.

20 Djoudi, Houria, and Maria Brockhaus. "Is adaptation to climate change gender neutral? Lessons from communities dependent on livestock and forests in northern Mali." *International Forestry Review* 13.2 (2011): 123-135.

21 Arora-Jonsson, Seema. "Virtue and vulnerability: Discourses on women, gender and climate change." *Global environmental change* 21.2 (2011): 744-751.

22 Resurrección, Bernadette P. "Persistent women and environment linkages in climate change and sustainable development agendas." *Women's Studies International Forum*. Vol. 40. Pergamon, 2013.

23 Lau, Jacqueline D., et al. "Gender equality in climate policy and practice hindered by assumptions." *Nature climate change* 11.3 (2021): 186-192.

| Stereotyping narratives | Intersectional narratives |
|---|---|
| Women are caring and connected to the environment | Caring roles and environmental engagement are shaped by socialisation, culture, and context, not innate gendered |
| Women in the Global South are more affected by climate change than men, and men in the Global North pollute more than women | Vulnerability is context-specific; diverse social groups in the Global South and North often develop innovative coping strategies shaped by local knowledge, social networks, and ecological conditions |
| Gender is the most important axis of social differentiation | Gender interacts with other social factors; intersectionality is needed to understand inclusion and adaptation |
| Climate interventions affect all women the same way | Interventions impact people differently; an intersectional lens reveals who benefits and who may be excluded |

**In the African context,** a recent systematic review[24] has found that many studies rely on a narrow range of research designs focused on individual perceptions. This approach often **reinforces stereotypical narratives or overgeneralisations about social norms, gendered roles, resource access and control, using them to explain resilience or vulnerability to climate change while glossing over broader political and economic dynamics** and putting blame narrowly on cultures or using other empirical studies to explain the differences in their particular case study. The review also highlighted the limited use of decolonial and transnational feminist approaches, which would better account for power dynamics between researchers and local communities.

There is growing recognition in conservation and development work, particularly in coastal ecosystems, that promoting and **advancing gender justice requires more than simply including women in activities**. Gender transformative approaches tackle the underlying causes of gender inequality by **challenging social norms, power relations, and expectations that limit people's choices and opportunities**. By contrast, approaches often described as "add women and stir" or "empowerment lite" focus around existing barriers - for example, by adjusting the times and locations of activities or providing women with targeted access to resources - without questioning why those barriers exist in the first place. While these measures can be useful in the short term, they are often limited and may lead to unintended consequences or backlash such as increases in workload for

24 Vercillo, Siera, Chris Huggins, and Logan Cochrane. "How is gender investigated in African climate change research? A systematic review of the literature." *Ambio* 51.4 (2022): 1045-1062.

women, social exclusion, and even surges in gender-based violence[25]. Evidence shows that **when initiatives actively work to shift beliefs and social expectations, more meaningful change is possible**. For example, research in coastal communities in the Solomon Islands showed that women's and men's livelihood choices were shaped by gender norms and perceptions of risk. When projects supported communities to question these norms, gender relations began to change, expanding women's agency and their ability to experiment and innovate (Lawless et al. 2019).

Climate change resilience and wetland conservation cannot be understood through a narrow focus on gender alone. An **intersectional lens can support revealing how gender interacts with factors such as race, class, age, ethnicity, and livelihood roles to shape vulnerability, agency, and adaptive capacity in context-specific ways**. Moving beyond stereotypes and "one-size-fits-all" approaches is essential to avoid unintended consequences and to design conservation and climate interventions that are inclusive, context-sensitive, and responsive to the realities of communities along the East Atlantic Flyway.

# 3. Intersectional inequalities at three key sites

This section examines CREAF's core implementation sites —the Banc d'Arguin (Mauritania), the Saloum Delta (Senegal), and the Bijagós Archipelago (Guinea-Bissau)—to **explore local gender dynamics in wetland management**.

The **Banc d'Arguin (Mauritania)** is a globally significant coastal wetland and UNESCO World Heritage Site, supporting high biodiversity, migratory birds, and small-scale fisheries. Traditional fishing practices of the Imraguen communities are closely linked to ecosystem dynamics and organised through gender-differentiated and socially stratified roles, with men primarily engaged in fishing activities and women playing central roles in processing, marketing, and knowledge transmission. These roles intersect with age, lineage, and social status, influencing access to resources and decision-making and shaping the resilience of low-impact, wetland-dependent livelihoods.

The **Saloum Delta (Senegal)** is a multifunctional wetland system of mangroves and estuaries that provides critical ecosystem services and supports diverse livelihoods. Men and women contribute in different but interconnected ways to fisheries, agriculture, and value chains, with men often involved in fishing and transport and women in shellfish (bivalves and gastropods) harvesting and processing. These gendered roles intersect with migration status, ethnicity, and economic position, affecting participation in governance structures and access to benefits. Despite women being key actors in shellfish harvesting, fish processing, and local value chains, contributing significantly to food security and adaptive capacity, their participation in wetland governance remains limited, underlining the need for gender-responsive management approaches.

The **Bijagós Archipelago (Guinea Bissau)** is one of the best-preserved wetland landscapes in West Africa, shaped by strong customary governance systems. Women and men hold distinct roles in resource use, ritual practices, and governance, structured also by age and social hierarchy. Understanding how these intersecting identities influence access to land, fisheries, and decision-making is essential for equitable, culturally grounded, and resilient wetland conservation.

Using research on conservation, gender, climate change, and small-scale fisheries, we examine **how gender interacts with other social factors such as age, class, ethnicity, and livelihood roles**. For example, in oyster harvesting or small-scale fishing, men and women may have different roles and access to resources, shaped by formal policies, informal rules and social expectations. The analysis follows

the **six IKI Gender Analysis dimensions**, as a lens to understand inequalities, capacities, and participation in these diverse wetland contexts, and highlighting how local knowledge and social structures influence sustainable management and conservation.

# 3.1 Rights, policies and socio-economic status: Protected areas, governance and livelihoods

**Contrasting governance regimes of coastal wetlands[26] can lead to conflicts and inequalities.** Governance in coastal wetlands involves both **formal rules, like laws and policies, and informal systems, such as local customs and social norms[27].** These systems interact and shape who can access resources, make decisions, and benefit from conservation. For example, in a mangrove wetland, formal rules may allow everyone to fish, but local customs or gender roles may influence who actually goes fishing or who controls the catch. Considering gender and local knowledge in these interactions helps design more just and effective governance for coastal wetland conservation.

**One form of interaction** between formal and informal governance systems is the **displacement of customary norms and practices following the establishment of new laws and policies**. In the core implementation sites of the CREAF project, this dynamic has been documented through the **emergence of mangrove enclosures**, that is, processes through which landscapes and seascapes traditionally managed as commons become appropriated, limiting or excluding local users' rights of access and use. Two particular ways of enclosures are described here: those created by the establishment of protected areas, and those resulting from mangrove reforestation policies. In both cases, these processes have had gendered impacts on local livelihoods.

### ▶ Impacts of protected areas on mangroves enclosure and social-ecological conflicts: zoning and users' rights

Protected areas remain the main tool for conservation governance at the global level, serving as a cornerstone for biodiversity protection. In particular marine protected areas can prevent biodiversity loss, restrict access and control fishing efforts[28]. However, growing scientific evidence shows that **many protected areas are contested**, particularly when they do not fully consider the needs, knowledge,

26 Coastal wetlands are transitional zones between land and sea, saturated with fresh, brackish, or saltwater, featuring specialized plants adapted to wet soils and varying water levels, including salt marshes, mangrove swamps, and seagrass meadows that buffer coasts from storms and provide vital habitats

27 Po, June YT, et al. "On institutional diversity and interplay in natural resource governance." *Society & Natural Resources* 32.12 (2019): 1333-1343.

28 Cross, Helen. "Displacement, disempowerment and corruption: challenges at the interface of fisheries, management and conservation in the Bijagós Archipelago, Guinea-Bissau." *Oryx* 50.4 (2016): 693-701.

and rights of local communities[29,30] and that marine protected areas in particular cases are susceptible to social failing resulting in the marginalisation of user groups. These **conflicts often intersect with local gender relations, as women and men may experience different access to resources, participation in decision-making, and distribution of benefits[31].** In the context of the CREAF project, the three main study sites are all located within protected areas (Table 1), making this a critical factor to consider for designing and implementing a **gender-responsive project.**

In West Africa, most local populations consider **mangroves as their communal territory** with multiple values and uses collectively controlled through customary rules[32]. Mangroves are considered heritage, they are:

**1) inherited from ancestors**,
**2) collectively designated and managed** as a common with a social, symbolic and affective charge, and
**3) passed on**, intact, modified, or enriched, **to the next generations**[31].

The chief of the village is the guarantor of respect for custom (e.g. seasonal prohibitions during the rainy season; declaration of certain areas as off-limits, etc.). Since French colonisation at the end of the 19th century, **land tenure has changed radically** , which led to **numerous departures from traditional norms or customs**, with instances of **land grabbing and privatisation** to the detriment of mangrove-dependent stakeholders.

29 Dowie, Mark. *Conservation refugees: The hundred-year conflict between global conservation and native peoples*. MIT press, 2011.

30 Hansen, Melissa. "New geographies of conservation and globalisation: The spatiality of development for conservation in the iSimangaliso Wetland Park, South Africa." *Journal of Contemporary African Studies* 31.3 (2013): 481-502.

31 Baker-Médard, Merrill. "Gendering marine conservation: the politics of marine protected areas and fisheries access." *Society & Natural Resources* 30.6 (2017): 723-737.

32 Cormier-Salem, Marie-Christine. "Desirable futures: Perspectives of Joola fisherwomen in Casamance, Senegal." *Futures* 162 (2024): 103435.

The **creation of most Marine Protected Areas has been based on** the same dominant discourse on the environmental crisis (the erosion of biodiversity) and the **implicit assertion of the inefficiency of local institutions**[33]. In the case of the Saloum Delta there is an intertwining of protected areas with different statuses and extensions that has disregarded the local people (see Table 1). In 2004, the creation of the Bambung MPA led to the enclosure of the Bambung bolon creating many tensions between the villagers on the one side, who lived in the area and were involved in the co-management of the MPA and the professionals of the sea on the other side, who were the traditional users of this bolon, the Niominka fishermen of the islands and the women, who were shellfish harvesters. Bambung MPA is a participatory but exclusive area, i.e., solely benefiting the villages along the Bambung bolon, although most of these villages are new, inhabited by diverse groups. In the **Banc d'Arguin National Park, in Mauritania** the conservation area (the Park) is adjacent to an area zoned for development (outside the Park's boundaries) without **any overall management model covering both areas** which has propelled an inside vs. outside the Park development[34]. This uneven development has had knock-on effects within the Park and has gendered consequences in the past, for example, the catch of mullet outside the Park not processed using traditional means, has deprived women of their livelihoods and Imraguen fishermen have turned to fishing elasmobranchs (rays and sharks), leading to overfishing[35].

**Table 1. Protected areas designation in three key sites and intersectional impacts**

| | Protected areas | Other conservation figures | Intersectional impacts |
|---|---|---|---|
| **Banc d'Arguin** | ▶ Banc d'Arguin National Park (PNBA) (1976)<br>▶ Ramsar site (1982)<br>▶ UNESCO world heritage (1989) | | Unmonitored fishing outside the Park has deprived Imraguen women of their livelihoods. |
| **Saloum Delta** | ▶ Saloum Delta National Park (1976)<br>▶ Biosphere reserve (1981)<br>▶ Ramsar Site (1984)<br>▶ UNESCO World Heritage (2011) | Bambung Protected Area (2004) | Mangrove enclosure with impacts on women shellfishers. |

33 Cormier-Salem, Marie-Christine. "Let the women harvest the mangrove. Carbon policy, and environmental injustice." *Sustainability* 9.8 (2017): 1485.

34 Campredon, Pierre, and François Cuq. "Artisanal fishing and coastal conservation in West Africa." *Journal of Coastal Conservation* 7.1 (2001): 91-100.

35 Lemrabott, Sidi Yahya Cheikhna, et al. "Overfishing of threatened bycatch species in a marine protected area: The elasmobranchs of Banc d'Arguin, Mauritania." *Fisheries Management and Ecology* 32.4 (2025): 97-106.

| | Protected areas | Other conservation figures | Intersectional impacts |
|---|---|---|---|
| **Bijagós Archipelago** | ▶ Bolama Bijagós Biosphere reserve (1996)<br>▶ Orango Islands National Park (1997)<br>▶ Cacheu National Park (1997)<br>▶ João Vieira - Poilão National Park (2001) | Community Reserve of Urok Islands (2005) | Conflicts among Indigenous islanders, migrant small-scale fishermen and sportfishermen. Also, between older and younger Bijagós people. |

Similarly, in the case of the **Bijagós Archipelago**, the designation of the **Orango National Park** (1997) and **the João Vieira - Poilão National Park** (2001) **has created conflicts. In the first case,** small-scale migrant fishers and Indigenous islanders felt disempowered since the declaration of the park, with an eruption of conflict, migrants being evicted and also being demanded payments by officials and the Bijagós fearing for the deterioration of their ecosystems[36]. In the second case, **local fishers were not allowed to fish in a large area surrounding the park but sportfishing was instead allowed** by licence from government officials, making the relationship among government officials, local residents and wealthy foreigners not always easy[37].

### ▶ Reforestation policies and REDD+: Mangroves as carbon sequestration sink and the interplay of tenure regimes

International policies such as **REDD+** have **prioritised mangroves as a carbon sequestration sink**, leading to inappropriate policies of reforestation and environmental injustice such as **mangrove grabbing and expropriation by local users**, notably toward the most marginalised population, women. For example, in the Saloum Delta, reforestation policies in mangroves with programs like "Plant your tree" conducted by the NGO Oceanium have driven **private enclosure of reforested sites**. The harvesters did not criticize reforestation itself, but the approach and its consequences[38], which Cormier-Salem (2017) describes in terms of **environmental injustice**.

36 Cross, Helen. "Displacement, disempowerment and corruption: challenges at the interface of fisheries, management and conservation in the Bijagós Archipelago, Guinea-Bissau." *Oryx* 50.4 (2016): 693-701.

37 Borrini-Feyerabend, G. and Hill, R. (2015) 'Governance for the conservation of nature', in G. L. Worboys, M. Lockwood, A. Kothari, S. Feary and I. Pulsford (eds) Protected Area Governance and Management, pp. 169–206, ANU Press, Canberra.

38 Cormier-Salem, Marie-Christine. "Let the women harvest the mangrove. Carbon policy, and environmental injustice." *Sustainability* 9.8 (2017): 1485.

## 3.2 Norms and values: customary governance and gender stereotypes

**Many communities view landscapes and seascapes not as empty spaces or resources but as living relatives, with ties shaped by kinship, spirituality and collective responsibility**[39,40]. For example, in the **Bijagós Archipelago, traditional governance systems based on customary authorities, sacred sites, and seasonal access rules have long regulated resource use and function as effective community-led conservation**[41]. Yet, the erosion of these cultural values and abandonment of traditional practices among women shellfish collectors can lead to overexploitation of stocks, with consequences for species across different trophic levels and at broader spatial scales, including impacts on migratory bird systems[42]. In the **Banc d'Arguin National Park, the Imraguen people hold ancestral—and now exclusive—rights to fish using traditional sailboats,** or *lanches*. This arrangement **has safeguarded Mauritania's only marine culture and one of the world's last sailing fishing fleets**, enabling ecological knowledge and cultural practices to persist across generations. Despite gradual exposure to international markets, the Imraguen maintain strong cultural attachments to emblematic species, such as dolphins and mullet (*Mugil cephalus*), which continue to hold deep social and symbolic significance within their communities.

**Wetland birds also hold cultural significance across the world**[43] and serve as key indicators of environmental change[44]. **People's perceptions of these birds help to understand ecological and social dynamics**[45] and also **shape spiritual, traditional, and symbolic practices**[46]. Despite their importance, **the relationships between people and wetland birds remain understudied**[47].

39 Artaud, Hélène. "A Sensory Seascape: Eco-aesthesia and Marine Toponymy in Imrâgen Fishing Communities of Banc d'Arguin, Mauritania." *The Sea Within: Marine tenure and cosmopolitical debates*. (2018): 49-70.

40 Matusse, Anselmo. "Protecting (with) Mount Mabo: is another form of nature conservation possible?." *The violence of conservation in Africa*. Edward Elgar Publishing, 2022. 187-201.

41 Borrini-Feyerabend, Grazia, and Rosemary Hill. "Governance for the conservation of nature." *Protected area governance and management* 7 (2015): 169-206.

42 Coelho, Ana P., et al. "Human–wildlife interactions on the tidal flats of the Bijagós Archipelago: does shellfishing affect migratory shorebirds?." *Wildlife Biology* 2025.1 (2025): e01134.

43 Tidemann, Sonia, and Andrew Gosler. "Ethno-ornithology: Birds." *Indigenous Peoples, Culture and Society* (2010).

44 Fraixedas, Sara, et al. "A state-of-the-art review on birds as indicators of biodiversity: Advances, challenges, and future directions." *Ecological Indicators* 118 (2020): 106728.

45 Tarakini, Tawanda, et al. "Integrating local ecological knowledge for waterbird conservation: insights from Kavango-Zambezi transfrontier conservation area, Zimbabwe." *Tropical Conservation Science* 11 (2018): 1940082918803810.

46 Alcántara-Salinas, Graciela, et al. "Bird conservation status and cultural values in Indigenous Mexican communities: towards a bioculturally informed conservation policy." *Journal of Ethnobiology and Ethnomedicine* 18.1 (2022): 69.

47 Araneda, Paola, et al. "The role of wetland birds in biocultural conservation: analysing global discourses and practices on species and ecosystems." *Ecosystems and People* 21.1 (2025): 2453476.

### ▶ Gender stereotypes in wetland management

Recognising and understanding the diversity of human–nature relationships beyond stereotypes requires an intersectional perspective[48]. For example, **historical narratives have often depicted women oyster harvesters as poor, weak, or responsible for mangrove degradation**. However, empirical evidence shows that they are skilled, knowledgeable, and actively organising rules and practices governing the harvest. The intersection of gender, class, and status shapes how women engage in oyster harvesting, influencing both their roles in the value chain (collection, processing, and sale) and their social recognition. **Women describe themselves as "earning women"**, **maintaining ecological knowledge, sustainable harvesting practices, and local social organisation**. This challenges past portrayals of their work as informal, chaotic, or environmentally destructive. Ethnicity also influences these practices: for Jola women, oyster harvesting is tied to a historically and spatially grounded sense of kinship, yet ethnic identity is fluid, allowing **distinctions between seaside and forest Jola** or between different clans, while maintaining a shared ancestry[49].

Similarly, in Guinea-Bissau **unfounded gender** stereotypes surrounding fishing roles **have often overlooked the diversity** that is present in mangrove communities. **Women's roles are not always concentrated in processing and selling**; they can be **also involved in nearshore fishing**, including gleaning for fish, crabs and shrimps and catch processing, contributing significantly to household food security and income[50].

## 3.3 Roles and responsibilities: relations and practices shaping local knowledge, care practices and wetland conservation

In many African contexts, gender, age, ethnicity, livelihood roles, social status and spiritual authority shape how people interact with wetlands, birds, and other non-human beings. These intersecting identities influence the distinct forms of expertise and ecological knowledge that diverse groups of women, men, youth, elders and marginalised groups contribute to ecosystem care.

Hélène Artaud's work[51,52] shows how **Imraguen communities understand the sea through multisensory, embodied and culturally grounded knowledge**. She

48 Díaz-Reviriego, Isabel, et al. "Disentangling gender and social difference for just and transformative biocultural approaches." *People and Nature* 6.4 (2024): 1394-1406.

49 Lau, Jacqueline D., and Ivan R. Scales. "Identity, subjectivity and natural resource use: How ethnicity, gender and class intersect to influence mangrove oyster harvesting in The Gambia." *Geoforum* 69 (2016): 136-146.

50 Keleman, Pieter-Jan, Rui Moutinho Sá, and Marina Padrão Temudo. "Drifting away from the roots: Genderfluidity as Diola's mangrove fishing strategies in three island-villages of Northern Guinea-Bissau." *Human Ecology* 52.5 (2024): 935-951.

51 Artaud, Hélène. "Spelling out Sensations: Reflections on the ways in which the Natural Environment can infiltrate Meaning-Making: Translated by Samantha LeClair." *The Senses and Society* 11.3 (2016): 262-274.

52 Artaud, Hélène. "A Sensory Seascape: Eco-aesthesia and Marine Toponymy in Imrâgen Fishing Communities of Banc d'Arguin, Mauritania." *The Sea Within: Marine tenure and cosmopolitical debates.* (2018): 49-70.

describes how marine toponymy—place names tied to sounds, colours, winds and currents—functions as a sensory map for fishing, navigation and everyday interactions with the environment. She further illustrates how tides, bodily sensations, and atmospheric cues shape meaning-making, revealing the **deep entanglement between sensory experience and ecological knowledge**. From an intersectional perspective, Artaud demonstrates that this knowledge is not uniform. It varies across gender, age, lineage and social status. Women and men engage differently with fishing spaces and marine resources; **elders hold memory-based expertise; and younger Imraguen navigate changing expectations linked to schooling, mobility and work**. She also highlights the important roles of warriors, marabouts and religious leaders, each contributing distinct forms of authority, spirituality and environmental understanding that shape how ecological practices and cultural meanings are maintained.

Building on this, Diouri and Chikhaoui demonstrate that Imraguen village spatial organisation and everyday interactions with land and sea are also structured by intersecting differences—including gender, age, lineage status, and occupation[53]. Women's activities centre on domestic and processing spaces, while men's mobility is tied to fishing zones and seasonal camps; meanwhile, social hierarchies shape access to resources, authority, and movement across the landscape. Together, these studies show that **Imraguen ecological knowledge is relational, sensory and socially differentiated**, produced through layered, **intersecting identities and power relations** that influence how **different community members experience, use, and care for their coastal environment**.

## ▶ Women shellfish collectors as key knowledge holders

**In the Bijagós Archipelago and the Saloum Delta, shellfish hold a particularly important role among mangrove resources**[54]. Women are key actors in the harvesting and processing of these aquatic resources, linking gendered labour to food security and the sustainable use of wetland ecosystems.

**Women shellfish collectors in mangroves possess deep, locally grounded ecological knowledge**, including the timing, location, and methods of harvesting various species. Their expertise, passed down through generations, allows them to sustainably manage mangrove resources and adapt to environmental changes[55]. Studies about oyster harvesting in Senegal and Gambia[56,57] show that this **activity is central to the livelihoods of low-income households, but its significance extends beyond mere**

53 Diouri, Zainab, and Naima Chikhaoui. "La communauté Imraguen sous le prisme du genre." *Bulletin d'Archéologie Marocaine* 25 (2020): 353-373.

54 Cormier-Salem, M. C., C. Bernatets, and O. Sarr. "Mangrove system sustainability: public incentives and local strategies in West Africa." *Tropical deltas and coastal zones: Food production, communities and environment at the land and water interface*. Wallingford UK: CABI, 2010. 409-421.

55 Carney, Judith A. "Shellfish collection in Senegambian mangroves: A female knowledge system in a priority conservation region." *Journal of Ethnobiology* 37.3 (2017): 440-457.

56 Lau, Jacqueline D., and Ivan R. Scales. "Identity, subjectivity and natural resource use: How ethnicity, gender and class intersect to influence mangrove oyster harvesting in The Gambia." *Geoforum* 69 (2016): 136-146.

57 Cormier-Salem, Marie-Christine. "Desirable futures: Perspectives of Joola fisherwomen in Casamance, Senegal." *Futures* 162 (2024): 103435.

**subsistence**. Women participating in oyster collection are not passive or marginal actors; their work provides a strong sense of identity, self-worth, and agency.

Overall, oyster harvesting exemplifies how women's traditional knowledge, labor, and social agency are crucial for both livelihoods and sustainable mangrove management. Despite their essential role, these **women's contributions are often overlooked in formal conservation policies and scientific studies**. Integrating their knowledge into mangrove governance can enhance ecosystem management while promoting social equity. Recognising this female-centered knowledge system highlights the intersection of gender, livelihoods, and environmental stewardship.

Similarly, recent research and institutional initiatives in the Bijagós Archipelago highlight that traditional ecological knowledge, particularly held by **women shellfish harvesters, plays a central role in both livelihoods and conservation outcomes**. Community-based management systems grounded in customary rules, taboos, and seasonal practices regulate access to shellfish resources and contribute to the long-term sustainability of intertidal ecosystems. Initiatives supported by Ramsar Convention and the NGO Tiniguena have increasingly recognised women not only as extractive users but also as key knowledge holders and governance actors, integrating their traditional regulatory practices into formal marine protected area management. Ecological research further strengthens the conservation relevance of traditional ecological knowledge by showing that traditional hand-based shellfish harvesting systems in Bijagós are currently ecologically sustainable, with no significant negative impacts on bivalve populations or associated bird species[58]. These studies suggest that conservation effectiveness in Bijagós is closely tied to the recognition of indigenous and gendered knowledge systems.

In the Saloum Delta, the women shellfish collectors are largely organised and supported by local and international NGOs (West African Association for Marine Environment [WAAME], IUCN, FAO) who have organised operational groups and cooperatives (Economic Interest Group), and the National Federation of Processed and Fresh Fish Operators (FENATRANS)

### ▶ Shifting gender roles and relations in fishing and shellfish harvesting

From an intersectional perspective, research on mangrove fishing practices in northern Guinea-Bissau demonstrates that gender roles in fisheries are dynamic. While shellfish harvesting remains strongly feminised, **climate stress, youth migration and livelihood diversification are reshaping access to and control over mangrove resources**, giving rise in some communities to **emerging forms of "gender fluidity" in fishing and harvesting roles[59]**. At the same time, social differentiation linked to age, mobility and economic vulnerability shapes who is

58 Coelho, Ana P., et al. "Human–wildlife interactions on the tidal flats of the Bijagós Archipelago: does shellfishing affect migratory shorebirds?." *Wildlife Biology* 2025.1 (2025): e01134.

59 Keleman, Pieter-Jan, Rui Moutinho Sá, and Marina Padrão Temudo. "Drifting away from the roots: Gender fluidity as Diola's mangrove fishing strategies in three island-villages of Northern Guinea-Bissau." *Human Ecology* 52.5 (2024): 935-951.

able to adapt to these transformations, highlighting that **traditional ecological knowledge is neither homogeneous nor static, but continuously reworked through shifting generational relations, gender dynamics and broader socio-economic pressures**.

In this context, restoration initiatives that focus exclusively on women within gender-related programming risk overlooking household dynamics and the needs and concerns of other gender groups, thereby reproducing partial and potentially exclusionary approaches to social inclusion[60]. Together, the evidence demonstrates that conservation in Bijagós and coastal Bissau is most effective where ecological science, traditional knowledge, and socially inclusive governance intersect, and that ignoring gender, age, and social differentiation risks undermining both environmental sustainability and social justice.

**Similarly, in the Banc d'Arguin, migration is a key factor reshaping Imraguen livelihoods in deeply uneven ways across social groups**. The arrival of migrant fishers and rising competition for marine resources undermine traditional Imraguen fishing practices, affecting especially older and poorer men who lack the capital or mobility to adapt to intensified fishing systems[61]. Following broader regional patterns, **many younger men migrate in search of income, altering household structures and weakening intergenerational transmission of ecological knowledge[62]** . Long-distance maritime migration and export-oriented globalisation have also increased pressures on local value chains. **Imraguen fishermen now sell mullet and its valuable roe to Asian and European export companies, sharply reducing women's access to this resource and eroding one of their few income sources** within the highly regulated context of the Banc d'Arguin National Park[63]. For women, whose activities centre on processing, trading, and sustaining social networks, these **reconfigurations increase economic precarity, with widows, young women, and female-headed households being particularly vulnerable[64]**. **Children also experience differentiated impacts**: boys may enter fishing earlier due to household income loss, while girls take on additional domestic responsibilities, limiting education and wellbeing[65]. Overall, migration drives uneven changes in work, power, knowledge transmission, and identity among Imraguen women, men, and children, shaped by gender, age, and socio-economic position.

60 Rice, Emma D., et al. "The future of gender research in small-scale fisheries: Priorities and pathways for advancing gender equity." *Fish and Fisheries* 25.3 (2024): 401-408.

61 Ly, Djibril, and Gilbert David. "The migration of fishers as a driver of change in local fishers' identity. The case of Imraguen fishermen in Mauritania." *African Identities* 19.3 (2021): 266-283.

62 Njock, Jean-Calvin, and Lena Westlund. "Migration, resource management and global change: Experiences from fishing communities in West and Central Africa." *Marine Policy* 34.4 (2010): 752-760.

63 Boulay, Sébastien, and Marie-Christine Cormier-Salem. "Le mulet jaune, un produit imrâgen requalifié." *Animal certifié conforme: Déchiffrer nos relations avec le vivant* (2012): 163-185.

64 Ibid. 61

65 Ibid. 62

## 3.4 Resources: opportunities, capacities and decision-making power

Access to and control over resources are shaped by intersecting social factors such as gender, marital status, education, wealth, and household composition. These intersections influence who can participate in value chains, capture economic benefits, and adapt to environmental and market changes. Empirical examples from African fisheries value chains illustrate these patterns. In Egypt, **education and household size influence which women and men participate more actively in fish trading** and secure higher profits[66]. In Malawi, **widowed and divorced women benefit more from market access than married women due to greater autonomy in decision-making**[67]. In Ghana, **poorer male fishers are disproportionately affected by declining stocks, while wealthier women involved in trading or gear ownership are relatively less vulnerable due to access to alternative fishing networks**[68].

**Women shellfishers**, once thought to only exist in selected communities in The Gambia, Senegal and Ghana have been **observed in 11 countries of the West African coast** from Senegal to Nigeria. They have been estimated to constitute **80% of the total 55,558 shellfish collectors** with Nigeria hosting the largest numbers[69]. Women harvesters in the **bivalve and gastropod shellfisheries have been found to cut across the value chain with complete representation at the processing, marketing and transportation nodes.** Men controlled the harvesting and transportation nodes of the crustacean and cephalopod fisheries whereas women remained chiefly in the processing and marketing nodes.

In the Saloum Delta, **shellfish play a major role in the local economy**, *Arca* (spp.), *Murex* (sp.) and *Melongenas* (spp.) occupy a prominent place in local consumption and in trade. Shellfish, especially oysters, are widely sold in weekly markets within the Saloum and in the urban markets across Senegal, including Kaolack and Dakar. They have become one of the **primary sources of income for the Niominka and Soce people**; in 2010, 92% of them considered shellfish gathering as their prime activity in terms of time invested. The same report[70] shows that in the same year, collectors of arks earned an average of 84,000 FCFA per month (approximately US$140). In the Bijagós Archipelago, the shellfish constitute the main source of animal protein and are cooked with a variety of oils. For the Bijagós, in 2010 only

66 Murphy, Seamus, et al. "Gender-based market constraints to informal fish retailing: Evidence from analysis of variance and linear regression." *PloS one* 15.3 (2020): e0229286.

67 Manyungwa, Chikondi Lydia, Mafaniso M. Hara, and Sloans K. Chimatiro. "Women's engagement in and outcomes from small-scale fisheries value chains in Malawi: effects of social relations." *Maritime Studies* 18.3 (2019): 275-285.

68 Danquah, Jones Abrefa, Charity Odumale Roberts, and Mark Appiah. "Effects of decline in fish landings on the livelihoods of coastal communities in Central Region of Ghana." *Coastal Management* 49.6 (2021): 617-635.

69 Chuku, Ernest Obeng, et al. "Spotlighting women-led fisheries livelihoods toward sustainable coastal governance: The estuarine and mangrove ecosystem shellfisheries of West Africa." *Frontiers in Marine Science* 9 (2022): 884715.

70 Cormier-Salem, M. C., C. Bernatets, and O. Sarr. "Mangrove system sustainability: public incentives and local strategies in West Africa." *Tropical deltas and coastal zones: Food production, communities and environment at the land and water interface.* Wallingford UK: CABI, 2010. 409-421.

80% of women considered shellfish gathering a secondary activity in terms of time, with rice cultivation taking precedence. Average monthly earnings from shellfish in the Bijagós were below 10,000 FCFA[71] (approximately US$14). In parallel, **women's leadership in shellfish harvesting and mangrove management is influenced by access to training, revealing that not all women benefit equally from resource access and decision-making opportunities** (e.g., gendered time allocation and leadership capacity building)[72].

## 3.5 Representation: Participation, leadership and governance

At the global level, participation in environmental governance remains uneven. Youth, women, and marginalised communities are often underrepresented in decision-making, despite being among those most affected by environmental change. Research shows that people's environmental knowledge, engagement, and influence are shaped not only by gender but also by intersecting factors such as age, education, socio-economic status, and geographic context[73]. These structural inequalities create barriers to meaningful participation, leadership, and the recognition of local and traditional knowledge. As a result, many governance systems continue to reproduce exclusion, highlighting the **need to move beyond symbolic inclusion toward more intersectional and transformative approaches to environmental governance[74]**.

In wetland and mangrove conservation, expanding participation and recognising local knowledge are widely promoted goals. However, participation alone does not necessariliy translate into decision-making power. Joshi et al. (2021) revisit **the "wise use" principle of the Ramsar Convention from an intersectional perspective**, and show that **inclusion in wetland governance often remains superficial when underlying power relations are not addressed[75]**. Women and marginalised groups may be formally included in committees or consultations, but structural barriers— including limited land tenure rights, restricted mobility, lack of recognition of their knowledge, or unequal institutional authority— often prevent them from influencing decisions. Conservation interventions can therefore unintentionally reinforce existing inequalities if they primarily benefit socially dominant groups while the everyday knowledge of poorer women and marginalised resource users remains undervalued. As the authors highlight, **meaningful inclusion requires not only participation but also a redistribution of decision-making power within governance systems.**

71 West African CFA franc

72 Women & Gender Constituency. *Strengthening Women's Ancestral and Artisanal Fishery to Preserve Mangrove Natural Resources in the Saloum Delta*. Women & Gender Constituency, 2016

73 Adom, Richard Kwame, et al. "Integrating the Perspectives of Youth, Women, and Marginalised Communities in Addressing Global Environmental Management Challenges." *Environmental Management* 75.12 (2025): 3261-3282.

74 Ibid. 60

75 Joshi, Deepa, et al. "Ramsar Convention and the wise use of wetlands: rethinking inclusion." *Ecological Restoration* 39.1-2 (2021): 36-44.

Efforts to strengthen climate resilience and adaptive capacity can also reproduce inequalities if they do not consider intersectional dynamics. **For example, focusing only on women may unintentionally increase household burdens without transforming power relations[76]; overlooking youth can contribute to the loss of intergenerational knowledge; excluding migrants may create tensions and weaken compliance with conservation measures; and engaging only formal leaders can marginalise the resource users who manage ecosystems through daily practices.** These examples illustrate that participation is not neutral and that leadership and governance are shaped by unequal access to power, resources and recognition. Yet the agency of local communities is often frustrated by gender-blind, top-down policies and research approaches that fail to fully understand local dynamics and priorities[77].

**Research and conservation initiatives can benefit from moving beyond portraying communities mainly merely as vulnerable actors groups and instead recognising their collective agency**, values, priorities, aspirations, and capacities. Building on **local knowledge, motivations, and social organisation strengthens both environmental and social outcomes**[78,79]. Positive examples demonstrate this potential. In West African shellfisheries, collaboration between government, research institutions, and civil society under the Sustainable Fisheries Management Project strengthened co-management and enhanced the capacity of poor women and youth oyster harvesters through formal user rights and recognition of their stewardship roles[80,81]. Similarly, collaborative work between researchers and Indigenous communities on the Far Eastern Curlew (*Numenius madagascariensis*) improved species conservation while also strengthening the self-determination of an Indigenous Ranger group[82].

## 3.6 Climate change and biodiversity: differential climate impacts, vulnerabilities and everyday adaptation

It is well documented that the **effects of climate change and the adaptations and interventions proposed to tackle it are varied depending on how people and communities are situated across different axes of social differentiation**

76 Blythe, Jessica, et al. "The dark side of transformation: latent risks in contemporary sustainability discourse." *Antipode* 50.5 (2018): 1206-1223.

77 Elias, Marlène, et al. "Ten people-centered rules for socially sustainable ecosystem restoration." *Restoration Ecology* 30.4 (2022): e13574.

78 Armitage, Derek, et al. "Governance principles for community-centered conservation in the post-2020 global biodiversity framework." *Conservation Science and Practice* 2.2 (2020): e160.

79 Elias, Marlène, Deepa Joshi, and Ruth Meinzen-Dick. "Restoration for whom, by whom? A feminist political ecology of restoration." *Ecological Restoration* 39.1-2 (2021): 3-15.

80 Atindana, Sandra Akugpoka, et al. "Coping with climate variability and non-climate stressors in the West African Oyster (Crassostrea tulipa) fishery in coastal Ghana." *Maritime Studies* 19.1 (2020): 81-92.

81 Chuku, Ernest Obeng, et al. "Spotlighting women-led fisheries livelihoods toward sustainable coastal governance: The estuarine and mangrove ecosystem shellfisheries of West Africa." *Frontiers in Marine Science* 9 (2022): 884715.

82 Lilleyman, Amanda, et al. "Indigenous knowledge in conservation science and the process of a two-way research collaboration." *Conservation Science and Practice* 4.8 (2022).

like gender, race/ethnicity, class, age, ability, sexuality, citizenship[83] **and also on the combined effect with non-climatic stressors like other environmental factors, social and economic shocks and everyday human concerns**[84]. However, mainstream adaptation approaches assume universal solutions and oversimplify adaptation processes, excluding plural knowledge systems[85]. For example in Senegal, the state and government agencies have played a central role in the formulation of adaptation policies, but the decision-making process does not give sufficient space to local communities[86].

In West African coastal communities the effects of climate change go hand in hand with the added effect of fisheries overexploitation for international markets. In this section we explain the perceptions and attributions of climate change by local communities, how these overlap with overfishing and finally some of the proposed conservation measures to preserve fisheries biodiversity through biodiversity labelling.

## ▶ Climate change perceptions, impacts and adaptation strategies

Climate change impacts in the core sites have been described by the scientific literature and **by local communities.** Described impacts are: **prolonged periods of drought, temperature variations, changes in precipitation patterns** -reduction of rainy season- , flooding as well as saline intrusion that have produced detrimental effects on livelihoods affecting water availability, water quality for consumption and agricultural and food production [87, 88]. However, climate change impacts **vary by gender, generation and livelihood roles.**

**Farmers seem to be one of the groups more affected by climate change.** For example, In the Saloum Delta, in a study in the Fatick area, **half of the farmers had either been affected by soil salinity or had lost land due to soil salinity expansion.** In Guinea-Bissau, these impacts have **entailed the abandonment of some traditional practices** like the regular tidal flooding of the lower fields with brackish water or their own traditional techniques of pest control [89]. In a recent survey in

83 Mikulewicz, Michael, et al. "Intersectionality & climate justice: A call for synergy in climate change scholarship." *Environmental Politics* 32.7 (2023): 1275-1286.

84 Fischer, Harry W., Kamal Devkota, and Divya Gupta. "Decentering climate in vulnerability analysis: On aspiration, striving, and the fullness of life in uncertain times." *World Development* 198 (2026): 107214.

85 Olazabal, Marta, et al. "What is limiting how we imagine climate change adaptation?" *Current Opinion in Environmental Sustainability* 71 (2024): 101476.

86 Mbaye, Adama, Jörn Schmidt, and Marie-Christine Cormier-Salem. "Social construction of climate change and adaptation strategies among Senegalese artisanal fishers: Between empirical knowledge, magico-religious practices and sciences." *Social Sciences & Humanities Open* 7.1 (2023): 100360.

87 Santos, Cláudia, and João Morais Mourato. "'I was born here, I will die here': climate change and migration decisions from coastal and insular Guinea-Bissau." *Geografiska Annaler: Series B, Human Geography* 106.2 (2024): 137-155.

88 Campredon, Pierre, and François Cuq. "Artisanal fishing and coastal conservation in West Africa." *Journal of Coastal Conservation* 7.1 (2001): 91-100.

89 Temudo, Marina Padrão, Ana IR Cabral, and Pedro Reis. "The sea swallowed our houses and rice fields: The vulnerability to climate change of coastal people in Guinea-Bissau, West Africa." *Human Ecology* 50.5 (2022): 835-850.

the Urok islands of the Bijagós Archipelago, 82% of the surveyed farmers stated that information on the onset of the rainy season would help them plan their activities [90].

In Senegal, **artisanal fishermen have also reported local impacts** of climate change on fisheries, such as changes in rainfall, air and sea water temperatures, **although they consider other environmental changes more important** than those produced by climate change[91].

**In Banc d'Arguin the shoreline change caused by climate change seemed to affect more the health of children, women, and vulnerable people** like the sick and the elderly. In addition to affecting the transportation of goods and sick people, **flooding was perceived to increase the humidity and salinity of the villagers' living environment**[92].

**The different perceptions and impacts are key for the adaptation strategies that are adopted by the different social actors.** For example in the Saloum Delta, half of the farmers who were affected by soil salinity or who had lost land due to it, used climate change adaptation strategies that entailed afforestation (reforestation with trees resilient to soil salinity expansion such as "Prosopis sp." and "Tamarix-senegalensis" , trees plantation around the farm, and mangrove replanting ) and fertiliser application which entailed chemical or organic fertilisers like and peanut and millet shells, domestic and livestock wastes[93].
In other instances, **the views on the causes of climate change impacts imply immaterial causes such as changes in cultural values or supernatural entities** [94]. For example, in the Bijagós Archipelago, Ilhéu do Rei's comité blames **the lack of rain on the lack of rain ceremonies.** Similarly, Senegalese artisanal fishermen, especially the older ones attributed climate change to divine will, middle age fishermen to human activities and younger ones report being more unaware of the causes, although these three dimensions are not mutually exclusive [95]. This has led to a variety of adaptation strategies, many of which combine various approaches, based on tradition, metaphysical-theological doctrines and the use

90 Octenjak, Sara, et al. "A climate services roadmap for smallholder farming communities: A case study of Urok islands in Guinea-Bissau." *Regional Environmental Change* 25.2 (2025): 61.

91 Mbaye, Adama, Jörn Schmidt, and Marie-Christine Cormier-Salem. "Social construction of climate change and adaptation strategies among Senegalese artisanal fishers: Between empirical knowledge, magico-religious practices and sciences." *Social Sciences & Humanities Open* 7.1 (2023): 100360.

92 Sabour, Salma. *Interdisciplinary assessment of the risks and impacts associated with erosion, flooding, and sea-level rise in coastal natural world heritage sites*. Diss. University of Southampton, 2023.

93 Temudo, Marina Padrão, Ana IR Cabral, and Pedro Reis. "The sea swallowed our houses and rice fields: The vulnerability to climate change of coastal people in Guinea-Bissau, West Africa." *Human Ecology* 50.5 (2022): 835-850.

94 Porcuna-Ferrer, Anna, et al. ""So many things have changed": Situated understandings of climate change impacts among the Bassari, south-eastern Senegal." *Environmental Science & Policy* 148 (2023): 103552.

95 Mbaye, Adama, Jörn Schmidt, and Marie-Christine Cormier-Salem. "Social construction of climate change and adaptation strategies among Senegalese artisanal fishers: Between empirical knowledge, magico-religious practices and sciences." *Social Sciences & Humanities Open* 7.1 (2023): 100360

of technology[96]. Policies designed to people adapt to climate change need to incorporate their socio- cultural norms to promote policy acceptance, rather than treating non-scientific approaches as completely irrational[97].

## ▶ Fish grabbing and overexploitation of fish stocks

**Coastal ecosystems are being recognised as a new economic frontier,** driving growth in emerging industries and in existing ones, pushed by the international promotion of the blue economy[98]. **Marine fishing exploitation by foreign fleets has been identified as a fundamental driver of change for coastal communities, as small scale fisheries provide critical resources of food security and economic stability for many households, and particularly women, and represent the main gender-balanced sector for coastal communities[99]. West African countries are also adopting blue growth strategies.** For example, Guinea-Bissau has recently adopted its National Blue Economy Strategy (2024–2030), which articulates ambitious goals of inclusive governance, gender empowerment, and alignment with continental (Agenda 2063) and global (Sustainable Development Goals - SDGs) frameworks. Yet, there is a **marked disconnection between these policy ambitions and the realities faced by small-scale fisher communities[100]. The decline of this sector has been also linked to involuntary migration, especially among young men** in fishing-dependent communities as shrinking economic opportunities make it hard to find available jobs and for whom migration to Europe is considered as one of the last-resort pathways[101], which in turn has led to heavier workloads and responsibilities for women within coastal communities.

In the **Banc d'Arguin,** foreign **fishing giants have been reported to circumnavigate fishing regulations using smaller and sometimes local vessels** to penetrate the restricted waters, and transport their catch to larger ships known as 'reefers.' There, the fish is frozen and stored with legally caught fish, sufficiently indemnifying the catch as 'legal' for European markets[102]. **In the Bijagós archipelago, residents claim a drastic decrease in fish populations and a shift in available species.** They attribute these changes to the presence of foreigners with small to medium-sized boats from neighbouring countries, primarily Senegal and Guinea, as well as larger foreign industrial fleets.

In the **Saloum Delta,** and more broadly along the West African coast, the rapid expansion of **fishmeal factories and fish-freezing plants** has intensified pressure

96 Íbid

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98 Jouffray, Jean-Baptiste, et al. "The blue acceleration: the trajectory of human expansion into the ocean." *One earth* 2.1 (2020): 43-54.

99 Belhabib, Dyhia, U. Rashid Sumaila, and Daniel Pauly. "Feeding the poor: Contribution of West African fisheries to employment and food security." *Ocean & Coastal Management* 111 (2015): 72-81.

100 Keleman, Pieter-Jan, et al. "Net gains or enmeshed losses? Mangrove fishing transformations among the Balanta across coastal Guinea-Bissau, West Africa." *Maritime Studies* 24.4 (2025): 1-17.

101 Jönsson, Jessica H. «Overfishing, social problems, and ecosocial sustainability in Senegalese fishing communities.» *Ecosocial Work in Community Practice*. Routledge, 2022. 11-28.

102 https://ejatlas.org/conflict/mauritanias-taoudeni-basin-exploration

on fish stocks [103]. This pressure has **increased overfishing and competition between women shellfish harvesters and traditional fishmongers [104].**

In the **Bijagós Archipelago,** and more broadly Guinea-Bissau small-scale fishers often remain unaware of the rights they are entitled although Guinea-Bissau has ratified the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security approved by the Committee on World Food Security because the dissemination and awareness-raising around these guidelines have been limited [105]. However,

### ▶ Coastal biodiversity conservation and seafood promotion: Biodiversity labelling as a conservation strategy

**Product labelling**—focused on food safety, traceability, and presentation—has been explored as a **way to support biocultural diversity, food security, and local capacities by valuing Indigenous and Local Knowledge where women are central actors as they effectively control the activities of shellfish as they control shellfish gathering, processing and sale [106].** However, labelling schemes may also have unintended consequences in ecological, social and nutritional terms that need to be taken into account.For example, higher production costs and prices obtained for these products might trigger that producers and consumers may no longer have access them [107].

In the Bijagós Archipelago, such initiatives remain limited; one example is **A Cozinha da Terra ("Home of Local Products")**, launched in 2008 by the NGO Tiniguena in the Urok Complex, which sought to recognise Bijagós traditions and know-how while adding value to local products and improving market access. In the Banc d'Arguin, **the production of botarga (dried mullet roe)** has been promoted as a way to valorise Imraguen Indigenous knowledge, support local livelihoods, and strengthen links between wetland conservation and food security. Initiatives led by the Parc National du Banc d'Arguin, in collaboration with local communities (Mauritanie 2000) and partner NGOs (Slow Food Foundation for Biodiversity), have sought to **recognise traditional processing practices—largely carried out by women—while improving product quality and market access,** thereby contributing to the preservation of biocultural heritage and local capacities [108].

103 Dème, El hadj Bara, et al. "Contribution of small-scale migrant fishing to the emergence of the fishmeal industry in West Africa: Cases of Mauritania, Senegal and the Gambia." *Frontiers in Marine Science* 10 (2023): 871911.

104 Brent, Zoe W., and Fatou Ndoye. "The Fisherwomen of the Saloum Delta: Building gender and climate justice one energy efficient oven at a time." (2022).

105 Ibid. 91

106 Cormier-Salem, M. C., C. Bernatets, and O. Sarr. "Mangrove system sustainability: public incentives and local strategies in West Africa." *Tropical deltas and coastal zones: Food production, communities and environment at the land and water interface*. Wallingford UK: CABI, 2010. 409-421.

107 Íbid 19

108 https://www.fondazioneslowfood.com/en/slow-food-presidia/imraguen-womens-mullet-botargo/, https://panorama.solutions/en/solution/supporting-promotion-imraguen-fishery-products-banc-darguin-np

# 4. Building on intersectional gender approaches in the CREAF project

The purpose of the CREAF Project Gender Action Plan is to ensure that project activities are gender-responsive and aligned with the IKI Gender Strategy (Annex 8, 8.2). Building on the insights provided by the case study review presented in the previous sections, this section reflects on how gender considerations are currently addressed across the project proposal to **identify opportunities that further strengthen the intersectional dimensions of the Gender Action Plan** as implementation progresses by more **explicitly reflecting intersectional dynamics**, including how different social factors, including gender, age, class, ethnicity, and livelihood roles, shape participation, access to resources, and project outcomes. It also points to **areas for continued learning and reflection** (Table 2), **as well as opportunities for further exploration** along the East Atlantic Flyway. The aim is to better reflect diverse local realities and to continue reinforcing CREAF's alignment with the IKI Gender Strategy, while supporting inclusive and effective conservation and climate action. Detailed options for implementing these proposals in practice are provided in the CREAF Gender Toolkit.

**Table 2. Key intersectional considerations for wetland governance, management and conservation within the CREAF project**

| Consideration | Description | Potential Impacts | Practical Actions | Relevance for core sites along the flyway |
|---|---|---|---|---|
| Superficial participation | Inclusion of women, youth, or marginalised groups without influence | Decisions dominated by socially dominant actors; ineffective participation | Ensure shared decision-making; co-design governance; monitor influence, not just presence | In Saloum Delta, Bijagós, Banc d'Arguin, formal governance often privileges male leaders while women and youth play central roles in resource management |
| Unequal benefit distribution | Interventions favour wealthier, connected, or land-owning actors | Poorer households, widows, migrants, and youth face restrictions and insecurity | Target benefits to vulnerable groups; use participatory needs assessments | Wealthier fishers capture benefits of fishing bans, aquaculture, or alternative livelihoods; poorer women and migrants are dispro-portionately constrained |

| Consideration | Description | Potential Impacts | Practical Actions | Relevance for core sites along the flyway |
|---|---|---|---|---|
| Knowledge marginalisation | Local ecological knowledge undervalued | Loss of sustainable practices and reduced intervention effectiveness | Document and integrate local knowledge; support intergenerational knowledge sharing | Women in mangrove shellfish harvesting hold critical ecological knowledge often excluded from planning |
| Governance conflicts | Overlap of customary, religious, and state rules | Social tensions, non-compliance, weakened legitimacy | Map and respect governance systems; mediate conflicts; co-develop rules with communities | Traditional seasonal and sacred rules may conflict with state-protected area regulations |
| Exacerbation of inequalities | Ignoring intersectional vulnerabilities (gender, age, socio-economic status, migration) | Increased household burdens, reduced access to resources, erosion of knowledge | Conduct intersectional analyses before interventions; design inclusive policies; monitor equity outcomes | Young men migrating, widows, female-headed households, landless users often bear dispro-portionate costs of conservation measures |

## 4.1 Opportunities to further strengthen the intersectional perspective of the Gender Action Plan

The CREAF Gender Action Plan already places an important emphasis on advancing women's participation and leadership. Building on this strong foundation, there is an opportunity to further explore how gender interacts with other dimensions of social differentiation across different conservation contexts. The following areas of action are presented as possible entry points to support shared reflection and learning within the consortium, and to further strengthen how overlapping social factors are considered in relation to participation, access to resources, and project outcomes across project sites.

- **Strengthening organisational capacity and learning (All outputs, whole project consortium)**
  - **Strengthen intersectional gender capacity across implementing organisations**
    Support training and learning exchanges that explore how gender interacts with factors including age, migration status, socio-economic position, and informal power structures along the Flyway conservation contexts.

- **Provide differentiated capacity-building opportunities**
  Tailor training and support for women, girls, and youth according to their specific constraints (e.g., mobility, care responsibilities, education, or legal status), linking capacity-building opportunities to concrete pathways for leadership and income generation.
- **Strengthen intersectional monitoring and learning**
  Integrate gender- and intersectionality-responsive indicators at organisational, programmatic, and site levels, supported by adequate staff capacity, budget, and links to adaptive management and decision-making.

### ▶ Promoting inclusive governance and participation (Outputs 2 and 5)

- **Promote inclusive leadership and shared decision-making**
  Encourage women's, youth's, and marginalised groups' leadership through co-leadership roles, shared governance mechanisms, and greater influence over resource allocation and project decisions.
- **Move beyond numerical parity in participation**
  Complement participation targets with approaches that also consider influence in decision-making, access to benefits, and meaningful engagement in project processes.
- **Promote gender- and power-responsive engagement with stakeholders**
  Work with customary leaders, government actors, community organisations, and everyday resource users to better understand formal and informal governance dynamics affecting conservation outcomes.

### ▶ Strengthening partnerships, knowledge and communication (Output 4)

- **Strengthen collaboration with specialised organisations**
  Partner with organisations and community groups working on gender equality, youth empowerment, migration, and social inclusion to benefit from existing expertise and avoid siloed approaches.
- **Integrate intersectional perspectives into communication and outreach**
  Ensure that community communication and multimedia campaigns highlight women, youth, and marginalised knowledge holders as active agents of change.

## 4.2 Opportunities for further knowledge development and promoting gender justice

The literature reviewed indicates that the relationships between people and wetland birds remain relatively understudied. While CREAF's overall objective is to improve conditions for both waterbirds and people along the East Atlantic Flyway, there is an opportunity to further explore how ecological and social dynamics intersect with gender and other social factors.

This presents a chance for the project to support targeted social-ecological participatory research that:

1. Examines how women, men in their diversity, and other social groups differently value, understand, manage, and interact with migratory birds.
2. Analyses participation in decision-making and access to benefits from conservation initiatives.
3. Generates evidence that strengthens both scientific understanding and CREAF's contribution to gender-just and locally grounded conservation outcomes.

In addition, considering broader socio-political and economic contexts is important for designing and evaluating conservation measures and livelihood initiatives. For example, the expansion of industrial fisheries, the grabbing of fishing grounds, and growth in the fishmeal industry are already affecting ecosystems and communities along the East Atlantic Flyway. Paying attention to these dynamic, context-specific pressures helps understand how social and ecological changes shape vulnerabilities across local populations, insights that can be fully captured through an intersectional perspective.

Taken together, the reflections, recommendations, and areas for further learning presented in this section are intended as entry points to support ongoing reflection, adaptive implementation, and collective learning within the CREAF consortium. By considering intersectional dynamics, strengthening inclusive participation, and promoting gender- and power-responsive approaches, the consortium can continue refining the Gender Action Plan to ensure it effectively supports both local communities and conservation outcomes along the East Atlantic Flyway.

THE WADDEN SEA FLYWAY INITIATIVE

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