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MAKING WAVES

DATA FOR ADVANCING GENDER-RESPONSIVE OCEAN SUSTAINABILITY



United Nations Entity for Gender Equality and the Empowerment of Women (UN Women)

UN Women exists to advance women's rights, gender equality and the empowerment of all women and girls. As the lead UN entity on gender equality and secretariat of the UN Commission on the Status of Women, we shift laws, institutions, social behaviours and services to close the gender gap and build an equal world for all women and girls. Our partnerships with governments, women's movements and the private sector coupled with our coordination of the broader United Nations translate progress into lasting changes. We make strides forward for women and girls in four areas: leadership, economic empowerment, freedom from violence, and women, peace and security as well as humanitarian action. UN Women keeps the rights of women and girls at the centre of global progress–always, everywhere. Because gender equality is not just what we do. It is who we are.

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Acknowledgements

UN Women would like to thank the Governments of Australia, France, Ireland and Sweden for their generous contributions to the Making Every Woman and Girl Count Programme, which provided support in the preparation of this publication. In addition, UN Women is grateful to the National Statistics Offices of Cambodia, Fiji, Kiribati, Samoa, Senegal, Tanzania and Tonga for providing access to specialized survey data for inclusion in this report.

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Acronyms

AIS	Automatic Identification System
ALDFG	Abandoned, Lost or Otherwise Discarded Fishing Gear
CEO	Chief Executive Officer
Chl-a	Chlorophyll-a
CO_2	Carbon Dioxide
EBUS	Eastern Boundary Upwelling Systems
IUU	Illegal, Unreported and Unregulated
UN	United Nations
UN Women	United Nations Entity for Gender Equality and the Empowerment of Women
UNEA	United Nations Environment Assembly
UNEP	United Nations Environment Programme



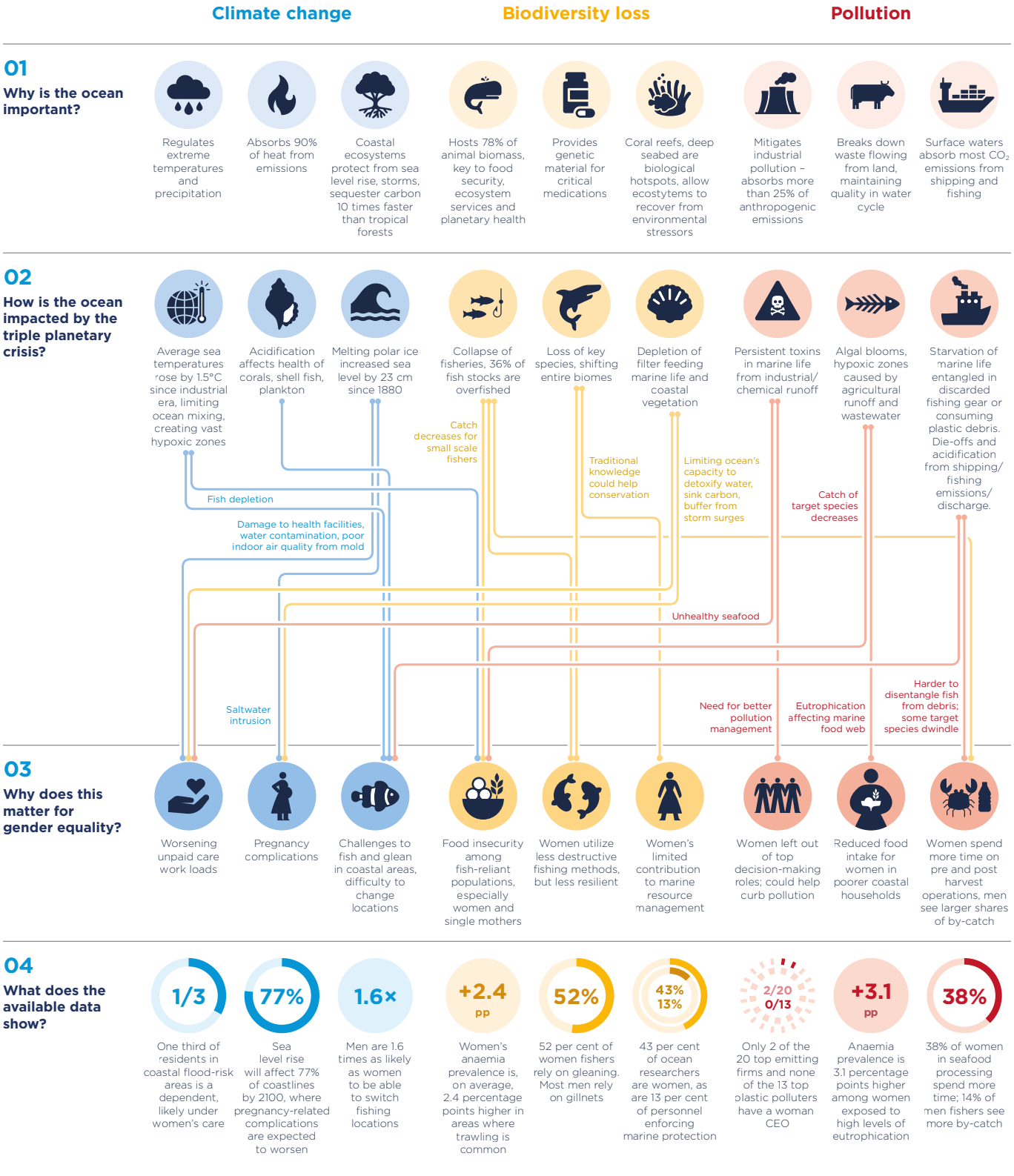
THE TRIPLE PLANETARY CRISIS, THE OCEAN AND GENDER EQUALITY

The ocean hosts a tremendous wealth of global biodiversity and ecosystem services that are essential for global food security and nutrition, maintaining human livelihoods and sustaining all life on earth. The ocean also plays critical protective roles against climate change and mitigates the impacts of pollution on human health. The triple planetary crisis is undermining these critical roles by putting the health of the world's oceans at stake. The combination of marine pollution, overfishing, increasing ocean temperatures and rising sea levels, among other threats, are impacting humans and ecosystems globally, and derailing hard won economic, social and environmental gains across the globe.

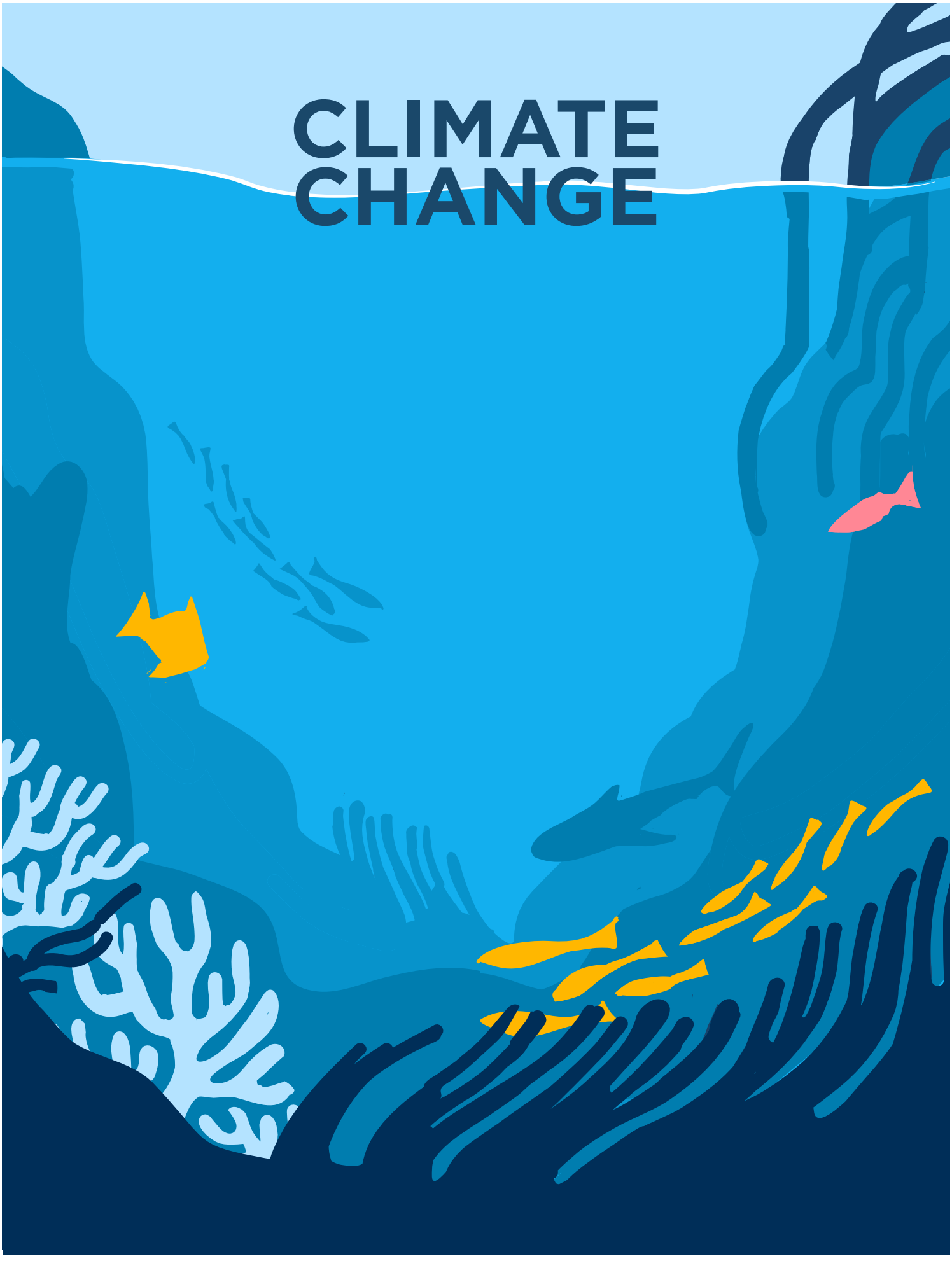
The impacts and opportunities associated with ocean change are not gender-neutral. Ocean degradation affects women's ability to realize a range of human rights, including rights to food, water, health, decent work and a healthy environment. Thus, understanding the connections between the triple planetary crisis, oceans and gender equality is essential to ensure that ocean governance delivers fair outcomes for all, and draws on the knowledge and leadership of both women and men in all their diversity. These connections are numerous, complex and highly interlinked.

FIGURE 1 showcases examples of these complex phenomena. These examples are by no means exhaustive, but help illustrate the importance of approaching this subject from a holistic perspective and linking ocean science to gender equality and women's empowerment. The figure also illustrates that effects of each of the three crises cannot be examined in isolation, as many of these issues are traced to two or even the three crises at once. Similarly, the specific impacts on gender equality can often be attributed to a combination of factors.

FIGURE 1. The triple planetary crisis, the ocean and gender equality



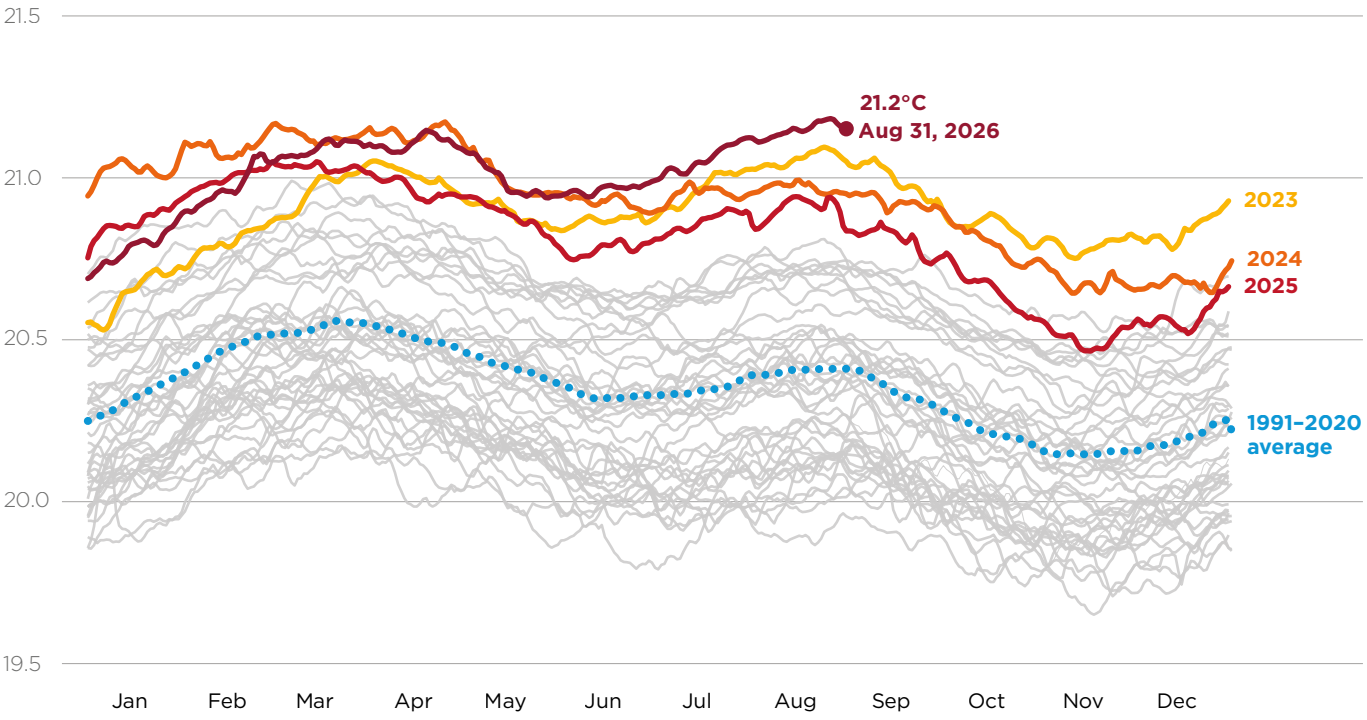
Lines trace how each ocean impact influences gender outcomes; colour shows the crisis of origin. pp = percentage points.


CLIMATE
CHANGE

The ocean plays a critical role in the fight against climate change. It absorbs about 90 per cent of the heat generated by rising emissions[1] and helps to regulate extreme temperatures and changing precipitation patterns. Coastal ecosystems, such as mangroves, salt marshes and seagrasses act as barriers against sea level rise and storms, which helps to guarantee the safety of millions of people living in coastal communities. Further, coastal habitats capture and sequester carbon ten times faster than mature tropical forests;[2] thus, they remain essential to delay a global tipping point.

Because of the ocean's extraordinary capacity to absorb excess heat, ocean temperatures have increased dramatically in recent years. On average, sea temperatures are almost 1.5°C higher than pre-industrial levels (**FIGURE 2**).[3] As a result, since 1900, melting polar ice has increased sea level by 23 cm,[4] putting millions of coastal dwellers at-risk of flooding and causing displacement and health ailments among those exposed. Given women are disproportionately in charge of caring for those who are sick, rising sea levels and flooding have gendered impacts. Warmer ocean surface temperatures also affect the intensity of storms, which can have catastrophic consequences for coastal regions. In concurrence, the ocean's substantial carbon sinking role is acidifying seawater – when carbon dioxide (CO_2) dissolves, it forms carbonic acid, which lowers the water's pH and affects the health of numerous marine organisms, including corals, shellfish and plankton – all of which are critical to maintain the marine food web, human food security and economic prosperity. These changes also impact women's ability to harvest marine life to maintain their livelihoods and food security. The combination of these phenomena limits ocean mixing and creates vast hypoxic zones, which lead to further declines in fish stocks, accelerates climate change and intensifies storms.

FIGURE 2. Average daily global ocean surface temperatures (°C), 1960- August 2026

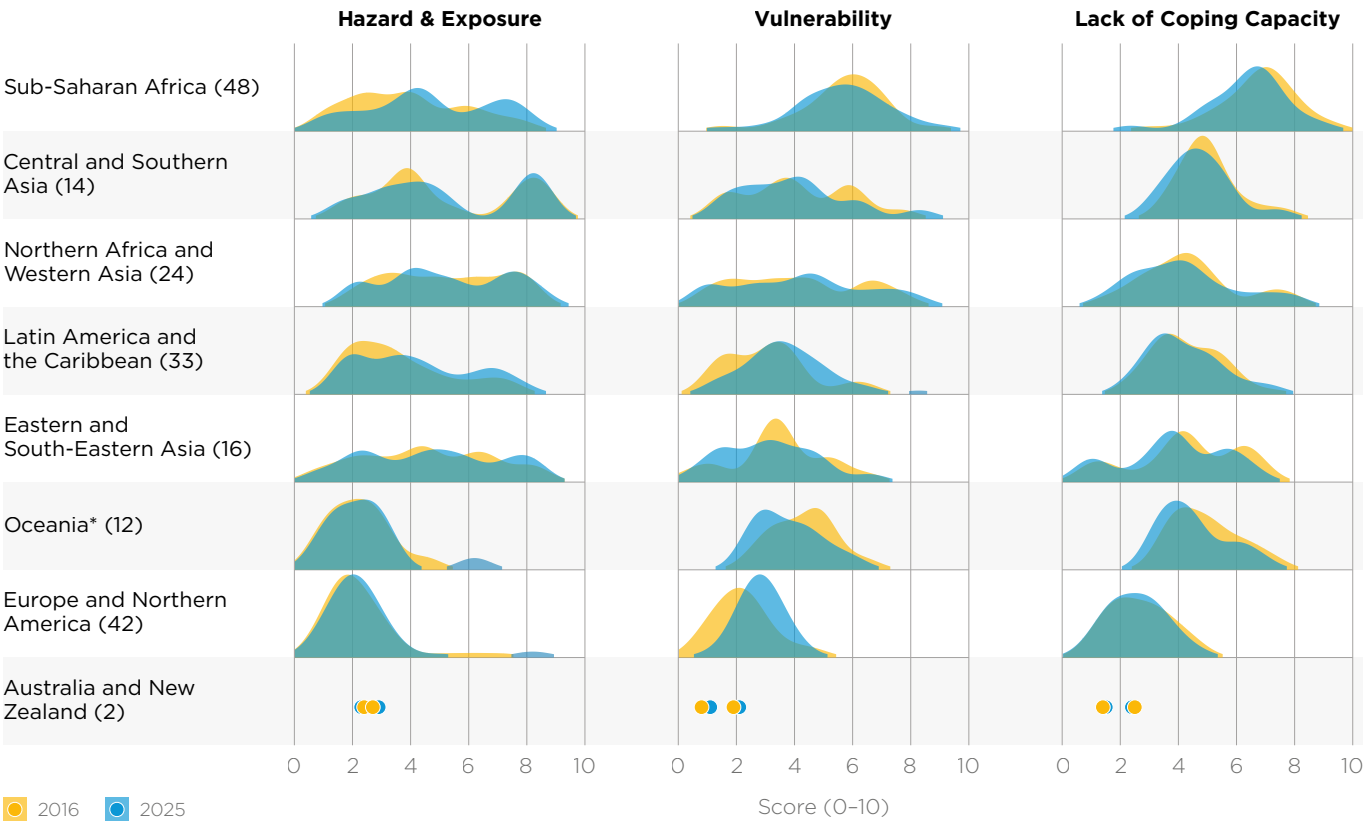


Sources: Author's adaptation based on Huang, B., L. Chunying & E. Freeman (2021). Improvements of the Daily Optimum Interpolation Sea Surface Temperature (DOISST) Version 2.1. Journal of Climate, Vol. 34, No. 8, pp. 2923-2939. Retrieved on 1 September 2026 from: Improvements of the Daily Optimum Interpolation Sea Surface Temperature (DOISST) Version 2.1; The University of Maine Climate Reanalyzer. Retrieved on 1 September 2026 from: Climate Reanalyzer - Climate Change Institute - University of Maine.

Over the past decades, many of these converging threats are increasing the frequency and severity of climate hazards.[5] Despite global efforts to adapt to the impacts of climate change, societies' resilience-building against such hazards has not matched the increases in frequency, severity and exposure to climate change (**FIGURE 3**). For instance, sub-Saharan Africa and Southern Asia have made substantial progress in enhancing people's capacity to cope with the impacts of climate change, largely through the use of nature-based solutions (sub-Saharan Africa) and improved infrastructure and insurance (Southern Asia); however, increases in hazard exposure have outpaced this progress.

Globally, sub-Saharan Africa and some parts of Southern Asia have among the highest vulnerability rates to climate change. For coastal communities, this translates into substantial impacts from storm surges, coastal erosion, sea level rise, saltwater intrusion, algal blooms and other devastating hazards, as exposure is matched with high levels of poverty, increased population density, limited economic diversification and other challenges. These patterns highlight the need to place adaptation and mitigation efforts alongside longer-term national development goals and strategies.

FIGURE 3. Distribution of INFORM Risk Index sub-component scores by sub-region, 2016-2025



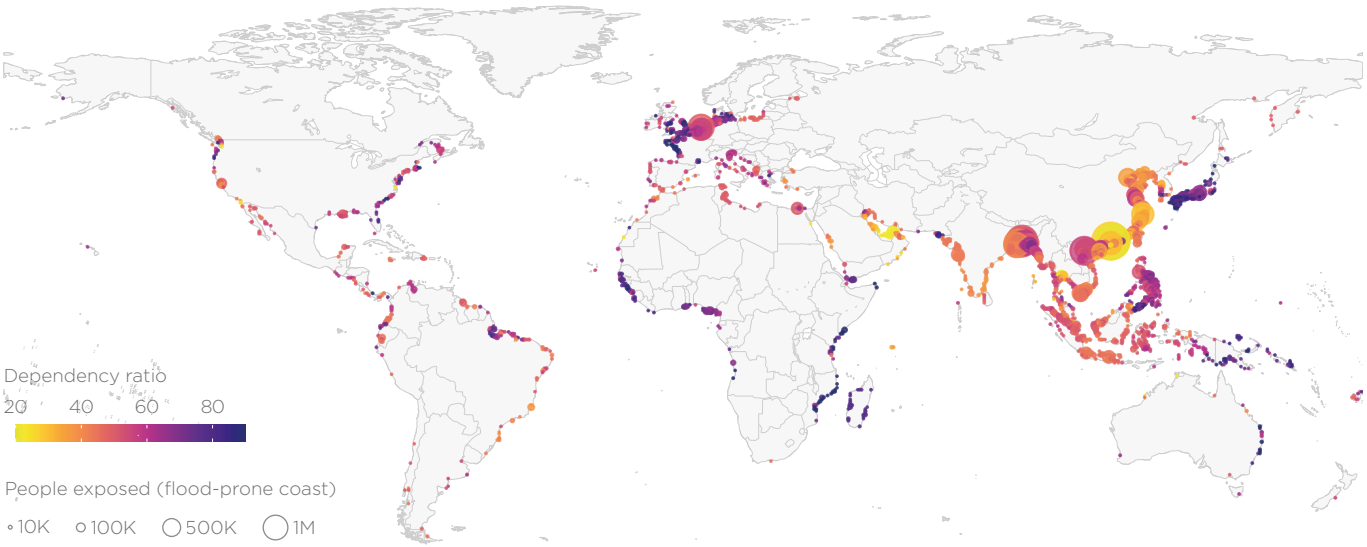
* Oceania excludes Australia and New Zealand. Note: The INFORM Risk Index is a global indicator-based disaster risk assessment tool which supports humanitarian crisis management decisions. The index provides scores across three dimensions: hazard & exposure; vulnerability; and lack of coping capacity. Hazard & exposure = likelihood and intensity of hazards and number of people exposed. Vulnerability = socioeconomic, structural and demographic factors affecting susceptibility to hazards. Whereas lack of coping capacity = absence of infrastructure, institutions or resources to deal with hazards. All scores range from 0 to 10, where higher values indicate greater risk. In this figure, each ridgeline shows the distribution of country-level scores within a sub-region over time. Distributions are unweighted across countries and are not adjusted for population. Subregions with fewer than five countries are not shown. Values in brackets are the number of countries where these data are available in each subregion. Source: Author's calculations based on the 2016 and 2025 INFORM Risk Indexes from the Inter-Agency Standing Committee and European Commission Joint Research Centre. Retrieved on 1 September 2026 from: INFORM Risk - Results and data.

Women's Unpaid Care Work Linked to Sea Level Rise

Besides the obvious damage to ecosystems from flooding and saltwater intrusion, sea level rise is also linked to the displacement of communities and to human health ailments, including those stemming from groundwater contamination and worsening indoor air quality due to mold and dampness. Some such conditions include elevated levels of stress and anxiety, hypertension, gastrointestinal disease, pregnancy complications, respiratory issues, and skin conditions, among others. The severity of health impacts is compounded by the effects of seawater and flooding on roads and transportation needed to access healthcare services, and structural damage to health facilities, both of which may delay access to healthcare; as a result, heightened care responsibilities are increasingly concentrated at home. In all countries with available data, women are more likely than men to care for the sick, children and elderly (**FIGURE 4**). This means that, globally, in an increasingly salinized and flood-prone environment, women's care workload may be worsening.

Coastal flood risk is present across all continents, but the distribution of at-risk populations and their vulnerabilities differ substantially. Globally, Asia has the largest share of coastal population and the largest total exposed population, which is clustered largely around the Bay of Bengal, coastlines and river deltas of Viet Nam and China, and throughout the Philippines and central and southern Japan. A substantial share of people who are at-risk of coastal flooding also exists in the Netherlands, where population density is high and the elevation is extremely low.

FIGURE 4. Dependency ratio (dependents per 100 working-age people) and population exposed to coastal flood risk (absolute numbers).

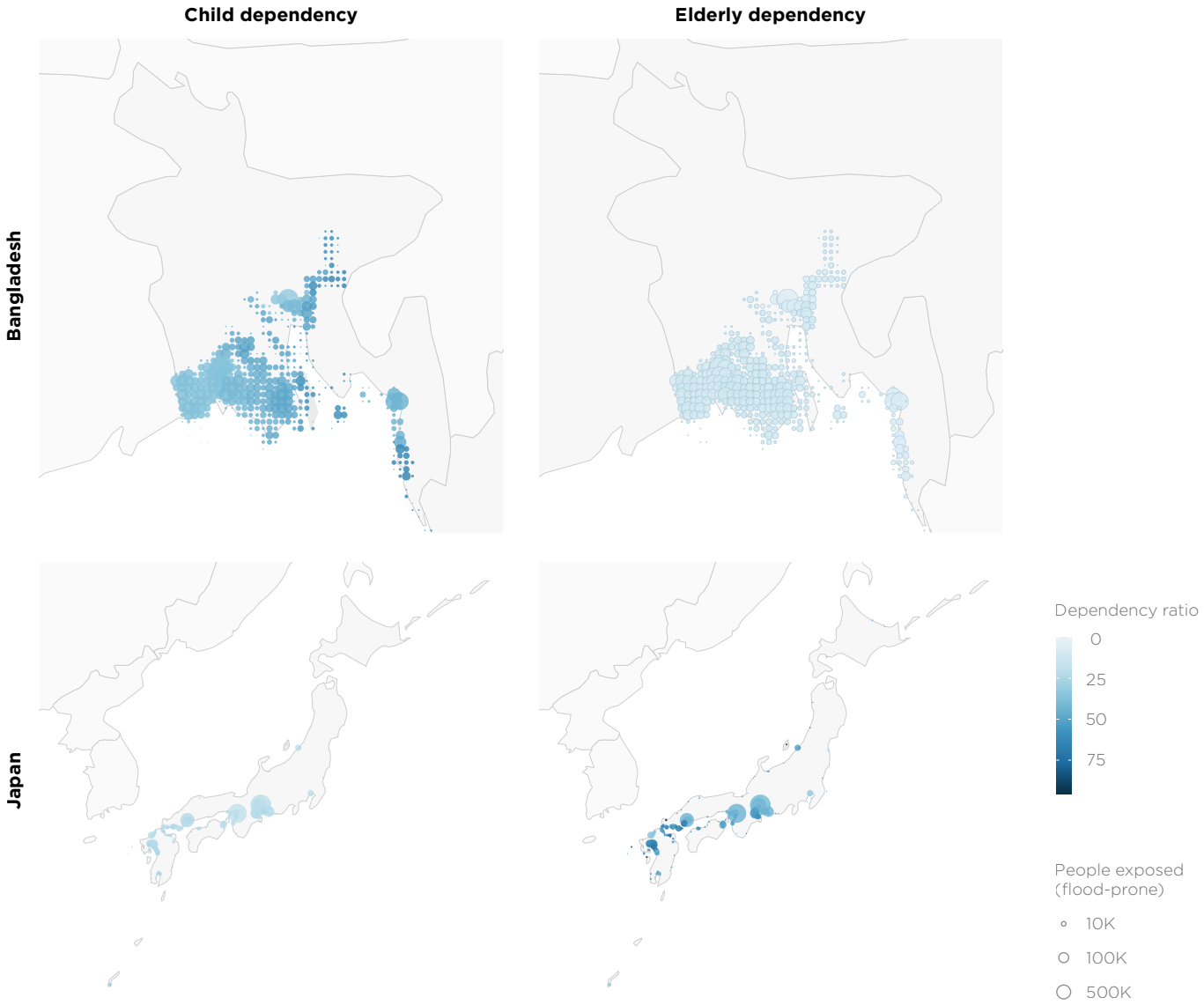


Note: The map shows populations living within the one-in-ten-year coastal flood zone. Underlying ~1 km population grids were aggregated into approximately 55 km cells, and each cell is plotted as one dot. Dot area is proportional to the total exposed population in the cell, and colour shows the total dependency ratio, calculated population-based (i.e., population under 15 years of age and 65 years and older) divided by working-age population (aged 15–64 years), multiplied by 100. Cells with fewer than 50 working-age people are excluded to avoid unstable ratios. Exposure is binary, which means that a person is counted as exposed if their cell falls within the flood zone, regardless of flood depth. The dependency-ratio colour scale is fixed at 20 to 90; values outside this range are shown at the nearest extreme. The ~55 km grid is intended for global comparison only and should not be read for individual small countries or islands, where a cell may span more than one country. Coastal flood hazard data extend to 60°N, so flood-prone coast above that latitude is not shown. Source: UN Women author's calculations based on WorldPop 2020 global population counts (disaggregated by age) and the World Resources Institute Aqueduct Floods coastal flood model (one-in-ten-year return period; with land subsidence and sea-level rise).

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For populations that face coastal flooding, unpaid care workloads tend to be more acute where dependency ratios are higher. For instance, large numbers of exposed populations in China show lower-to-moderate dependency ratios, whereas exposed populations in Bangladesh, the Philippines and Viet Nam show much higher dependency ratios, driven by higher fertility rates. Similarly, large numbers of exposed populations in Japan show higher dependency ratios, driven by high elderly dependency rates (**FIGURE 5**). For women and

FIGURE 5. Total population living in coastal flood risk areas with high dependency ratios, Bangladesh and Japan (absolute numbers), 2020



Note: The maps show populations living within the one-in-ten-year coastal flood zone in Bangladesh and Japan. Underlying ~1 km population grids were aggregated into approximately 9 km cells, and each cell is plotted as one dot. Population and flood layers were clipped to national boundaries before aggregation. Dot area is proportional to the total exposed population in the cell, and colour shows the dependency ratio, disaggregated into child versus elderly dependency ratios. Cells with fewer than 50 working-age people are excluded to avoid unstable ratios. Exposure is binary: a person is counted as exposed if their cell falls within the flood zone, regardless of flood depth. Both panels share a single dependency-ratio colour scale so that child and elderly burden are directly comparable; the scale is fixed and values outside its range are shown at the nearest extreme. Given the modelled exposure excludes tsunami, they may underrepresent certain regions in Japan. Source: UN Women authors' calculations based on WorldPop 2020 global population counts (disaggregated by age) and the World Resources Institute Aqueduct Floods coastal flood model (one-in-ten-year return period, with land subsidence and sea-level rise).

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men in these countries, floods and saltwater intrusion translate into particularly taxing unpaid domestic and care workloads to support their families, including treating water prior to consumption, fixing structural damage to homes, procuring essential hygiene and everyday products, and caring for children, elderly and sick family members who may suffer from flood or saltwater-related health ailments or mobility limitations.

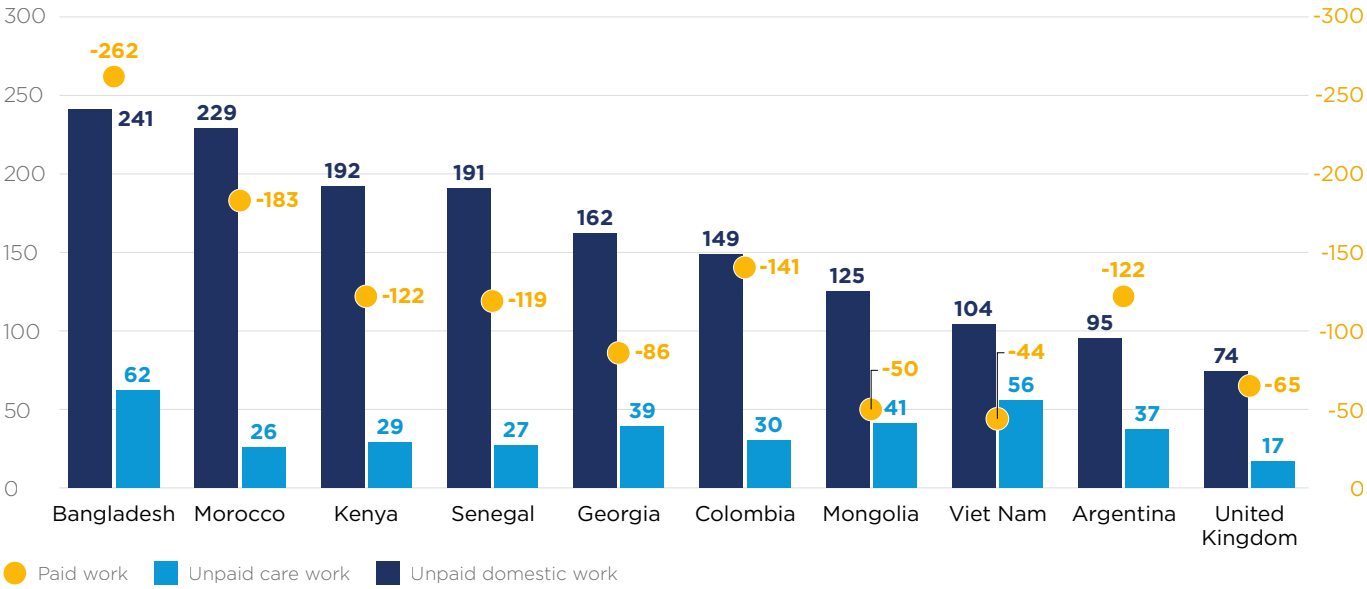
In Japan and the Netherlands, catastrophic inundation is often prevented by extensive barriers and coastal management techniques.[6] Whereas in Bangladesh, Viet Nam and the Philippines, such infrastructure is less extensive; thus, the impacts of sea level rise on coastal populations are more severe and worsening care workloads are more widespread.

Across countries, time-use data shows that women shoulder most of the care work, particularly single mothers (**FIGURES 6 AND 7**). To support caregivers and ensure women have sufficient free time to allocate to paid work, healthcare, education and leisure activities, the provision of targeted services should be informed by available data. For instance, data for Bangladesh shows that Dhaka hosts many families with children in need of support, but Cox's Bazar has some of the largest child dependency ratios among all regions exposed to flooding, which means that caregivers in this area are more likely to be overwhelmed. In Japan, the same divergence appears, but at the opposite end of the age range: Aichi Prefecture, around Nagoya, has large concentrations of exposed populations, whereas smaller communities in the Yamaguchi Prefecture have some of the highest elderly dependency ratios.

Gender inequalities worsen care workloads for women. In particular, in highly flood-prone and gender unequal countries, such Bangladesh, Egypt, Indonesia and Myanmar, women who are exposed to coastal flooding likely face a compounded vulnerability, with their resilience constrained by social, economic, and political barriers (**FIGURE 8**). In Madagascar and Nigeria, where coastal flood risk is substantial, albeit not as high, larger gender inequalities highlight the need for policy interventions, as the effects of sea level rise would be substantial for women.

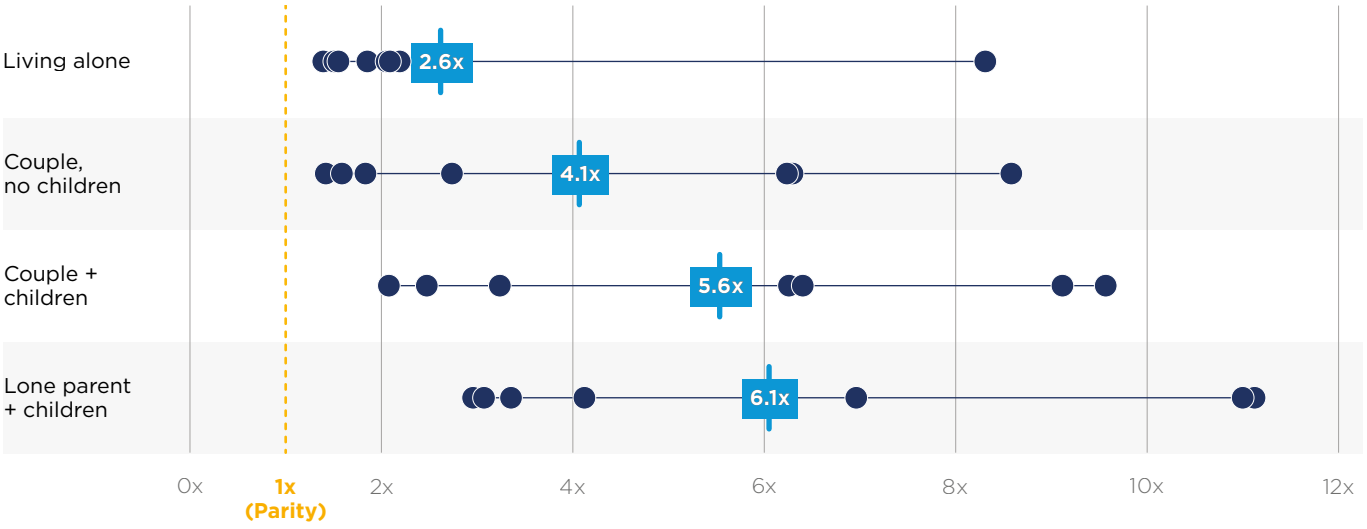


FIGURE 6. Gender difference (women - men) in time spent on paid work and unpaid care and domestic work per day (minutes), latest available year



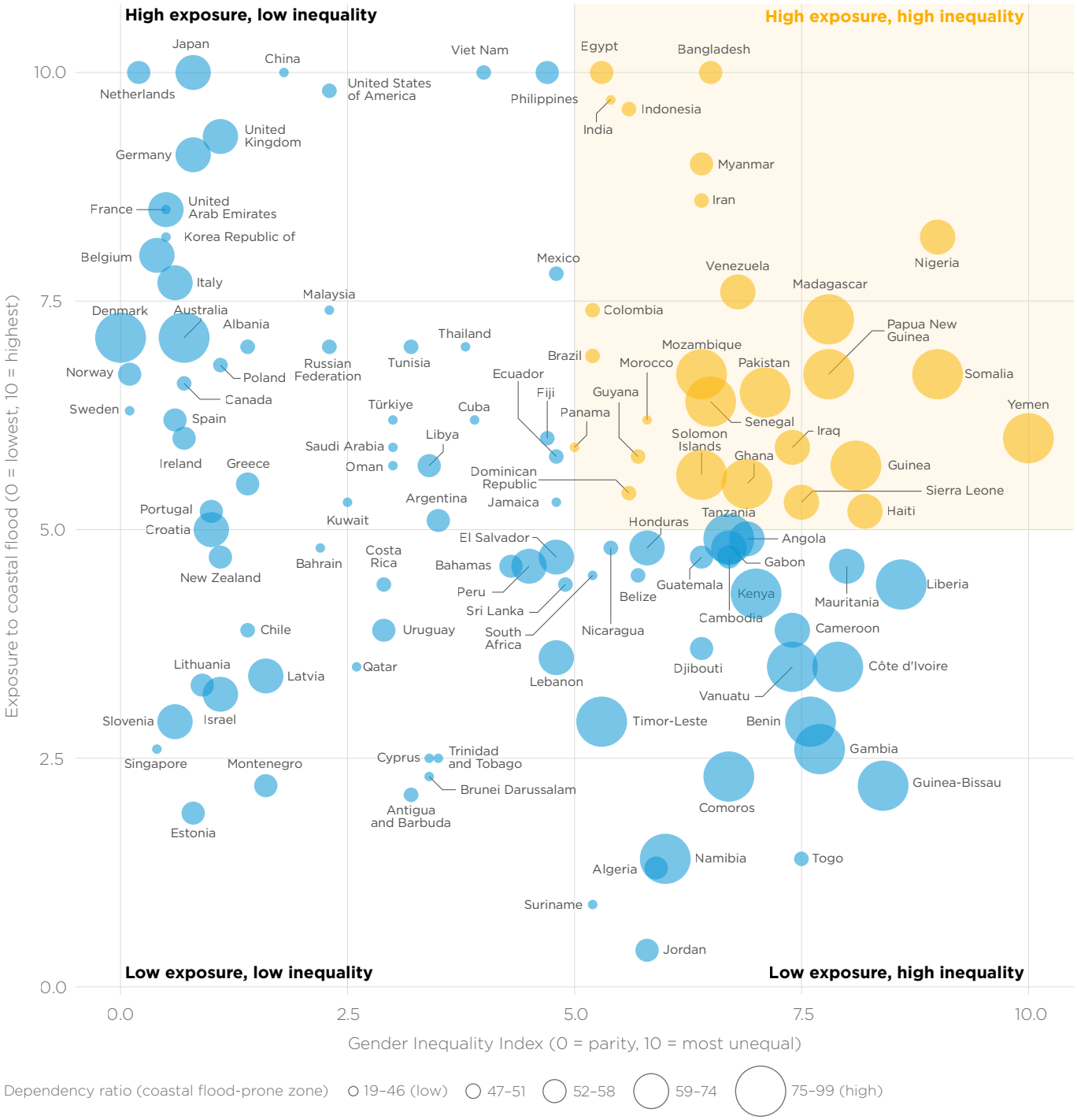
Note: Calculations are based on the harmonized database created from the original national time-use surveys microdata for Argentina, Bangladesh, Colombia, Georgia, Kenya, Mongolia, Morocco, Senegal, United Kingdom, and Viet Nam. Source: UN Women (2026). Time Use and Social Inequality: A Gendered Perspective. UN Women: New York, NY, USA. Retrieved on 1 September 2026 from: Time Use and Social Inequality – a Gendered Perspective | UN Women Data Hub.

FIGURE 7. Gender gaps in unpaid work (women's unpaid work as a multiple of men's) by household composition (times), 2024



Note: Calculations are based on a harmonized database created from original national time-use surveys microdata for Argentina, Bangladesh, Colombia, Georgia, Kenya, Mongolia, Morocco, Senegal, the United Kingdom, and Viet Nam. Boxes denote the average for eight countries and dots denote individual countries. A ratio above 1 (dashed line) indicates women do more unpaid work than men. The average rises from 2.6 times for people living alone to 6.1 times for lone parents with children. Kenya and Viet Nam lacked data by household composition. Source: UN Women (2026). Time Use and Social Inequality: A Gendered Perspective. UN Women: New York, NY, USA.

FIGURE 8. Correlation between exposure to coastal flooding and gender inequality (indices), 2026



Note: INFORM is a collaboration of the Inter-Agency Standing Committee Reference Group on Risk, Early Warning and Preparedness and the European Commission, with the European Commission Joint Research Centre as the scientific lead of INFORM. Exposure to coastal flooding and gender inequality are presented as indices. Exposure to coastal flood captures the physical exposure to coastal flooding in terms of the average annual population exposed. The Gender Inequality Index (GII) reflects gender-based disadvantages across three dimensions – reproductive health, empowerment and the labour market. The GII value is between 0 and 1, with 0 being 0 per cent inequality (indicating that women fare equally in comparison to men) and 1 being 100 per cent inequality (indicating women fare poorly in comparison to men). GII values for INFORM are derived from the United Nations Development Programme (UNDP) Human Development Report. Only countries with available data and some level of coastal flood risk are represented in the figure. Bubble size shows the dependency ratio in the 1-in-10-year coastal flood zone, grouped into five quintile classes, each containing about one fifth of countries. Classes are used to make differences easier to see, so bubble sizes are not proportional to the absolute values. Differences within a class can be larger than differences between neighbouring classes. Source: Based on INFORM 2026. Retrieved on 1 September 2026 from: INFORM - Global, open-source risk assessment for humanitarian crises and disasters.

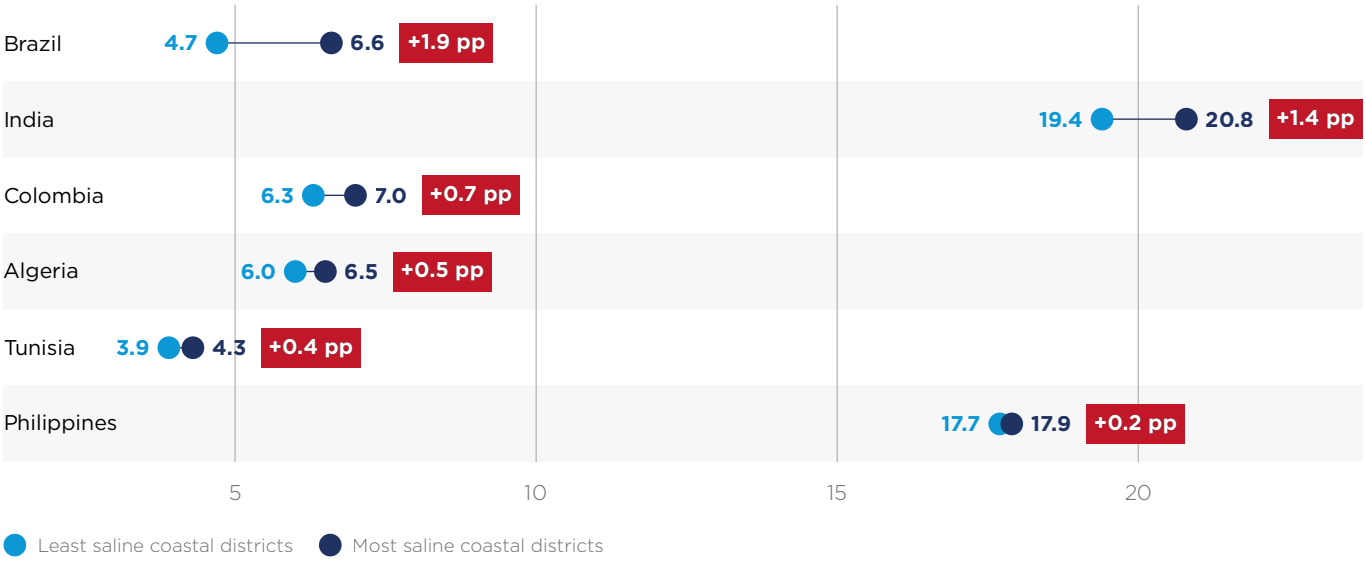
Saltwater Intrusion Affects Pregnancy Outcomes in Coastal Areas

Coastal aquifers supply drinking, agricultural, and industrial water to millions of people, and are essential to maintaining key ecosystems, such as wetlands. When sea levels rise and inland freshwater levels drop (largely due to overextraction, sand dredging and/or drought), and when storm surges force seawater over land boundaries, saltwater intrusion occurs, including in ground aquifers. In the presence of salinity, crops are unable to uptake water as needed, which affects agricultural yields, and soil degradation occurs, which often causes die-offs in mangroves and coastal wetlands.

Saltwater intrusion substantially impacts people's livelihoods and health. Consuming salinized drinking water is known to cause elevated blood pressure and raise the risk of stroke. Pregnant mothers are particularly vulnerable to the impacts of salinized drinking water, which may contribute to gestational hypertension, preeclampsia, eclampsia and preterm births. This association is obvious across countries and can be ascertained by looking at the proportion of newborns with low birthweight. Across many coastal districts, newborns are more likely to be underweight where soil salinity is higher, even once differences in poverty rates are considered. This association is particularly robust in Algeria, Brazil, Colombia, India, the Philippines and Tunisia. In Brazil, when the least salinized and most salinized coastal districts are compared, the share of underweight newborns increases from 4.7 to 6.6 per cent, respectively, a difference of 1.9 per centage points. Similarly, in India, when the least salinized and most salinized coastal districts are compared, the share of underweight newborns increases from 19.4 to 20.8 per cent, respectively, a difference of 1.4 percentage points.[7] Although these differences are not large, they are statistically significant (**FIGURE 9**).

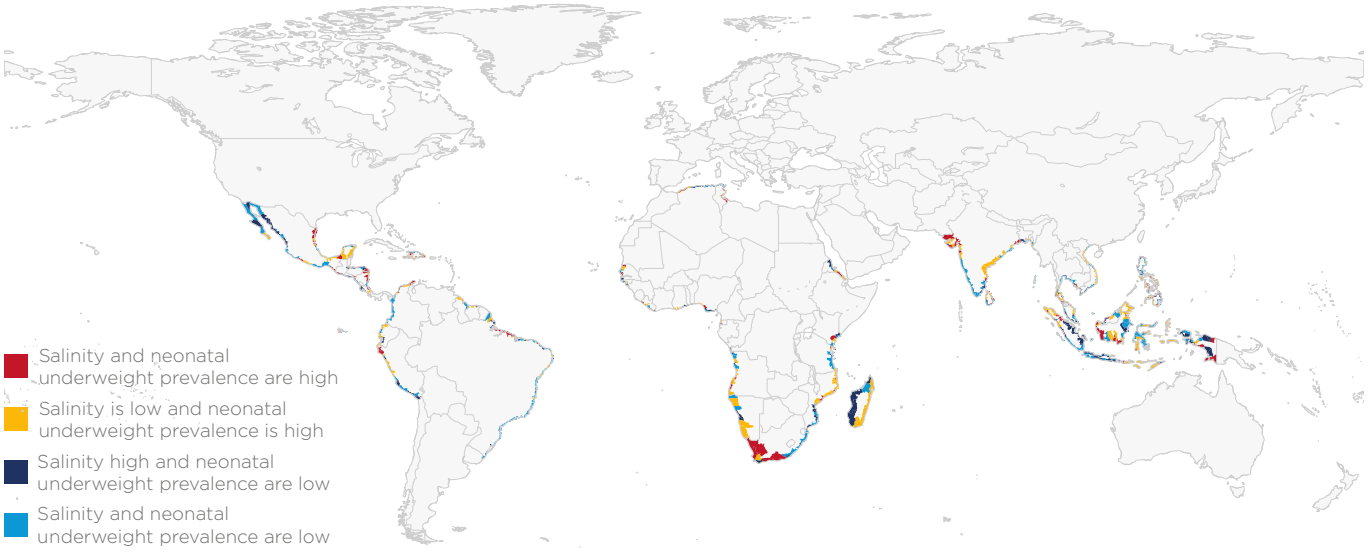
FIGURE 10 shows that the distribution of salinization is influenced by characteristics of the terrain;[8] and **FIGURE 11** zooms in to show the geospatial characteristics of

FIGURE 9. Wealth-adjusted early-neonatal underweight prevalence rates (0-6 days) in high versus low soil salinity coastal districts (percentage), 2019



Note: Coastal districts lie within 10 km of the ocean. Each district is classified against its own country's average, after accounting for poverty. Red indicates districts above average for both soil salinity and newborn underweight. Boundaries shown do not imply official endorsement or acceptance by the United Nations (UN). Source: UN Women author's calculation based on Institute for Health Metrics and Evaluation (IHME) Child Growth Failure (2019). Retrieved on 1 September 2026 from: Child Growth Failure | Institute for Health Metrics and Evaluation; Global administrative boundaries series (GADM 3.6). Retrieved on 1 September 2026 from: Global administrative boundaries series (GADM 3.6) - Datasets - "FAO catalog"; Relative Wealth Index (VECTOR). Retrieved on 1 September 2026 from: Relative Wealth Index (vector) | Data | GeoHub; Data related to coastal soil salinity and poverty.

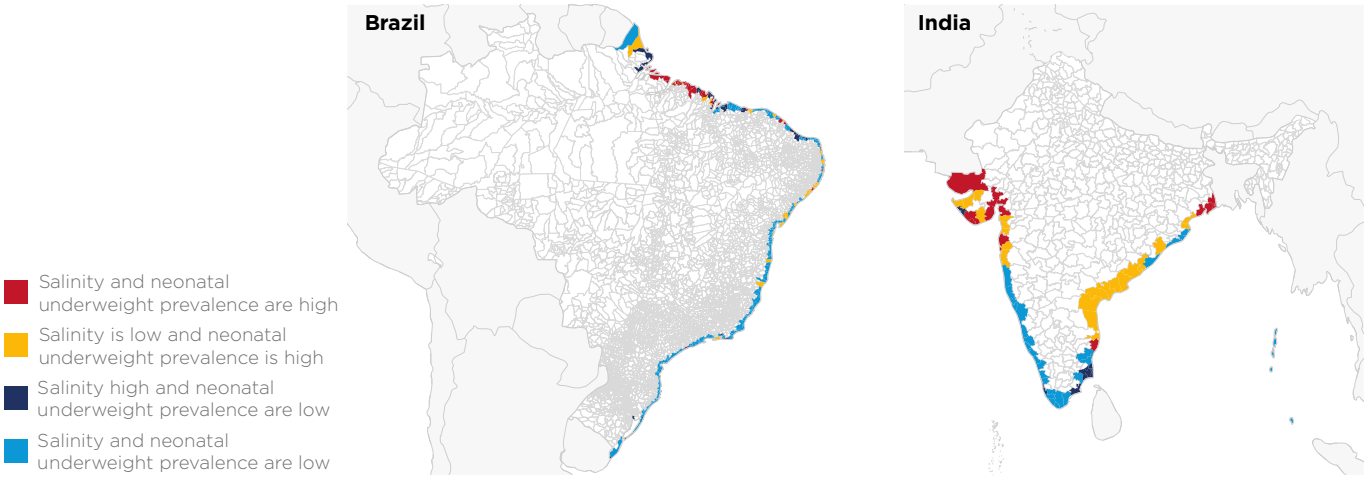
FIGURE 10. Coastal hotspots of soil salinity and newborn underweight prevalence (controlling for relative wealth), 2019



Note: Coastal districts are those that lie within 10 km of the ocean. Each district is classified against its own country's average after accounting for poverty. Red indicates districts above that average for both soil salinity and newborn underweight prevalence rates. Boundaries shown do not imply official endorsement or acceptance by the UN. Source: UN Women author's calculation based on IHME Child Growth Failure (2019). Retrieved on 1 September 2026 from: Child Growth Failure | Institute for Health Metrics and Evaluation; Global administrative boundaries series (GADM 3.6). Retrieved on 1 September 2026 from: Global administrative boundaries series (GADM 3.6) - Datasets - "FAO catalog"; Relative Wealth Index (VECTOR). Retrieved on 1 September 2026 from: Relative Wealth Index (vector) | Data | GeoHub; Data related to coastal soil salinity and poverty.

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FIGURE 11. Coastal hotspots of soil salinity and newborn underweight prevalence (controlling for relative wealth) in Brazil and India (latest available year)



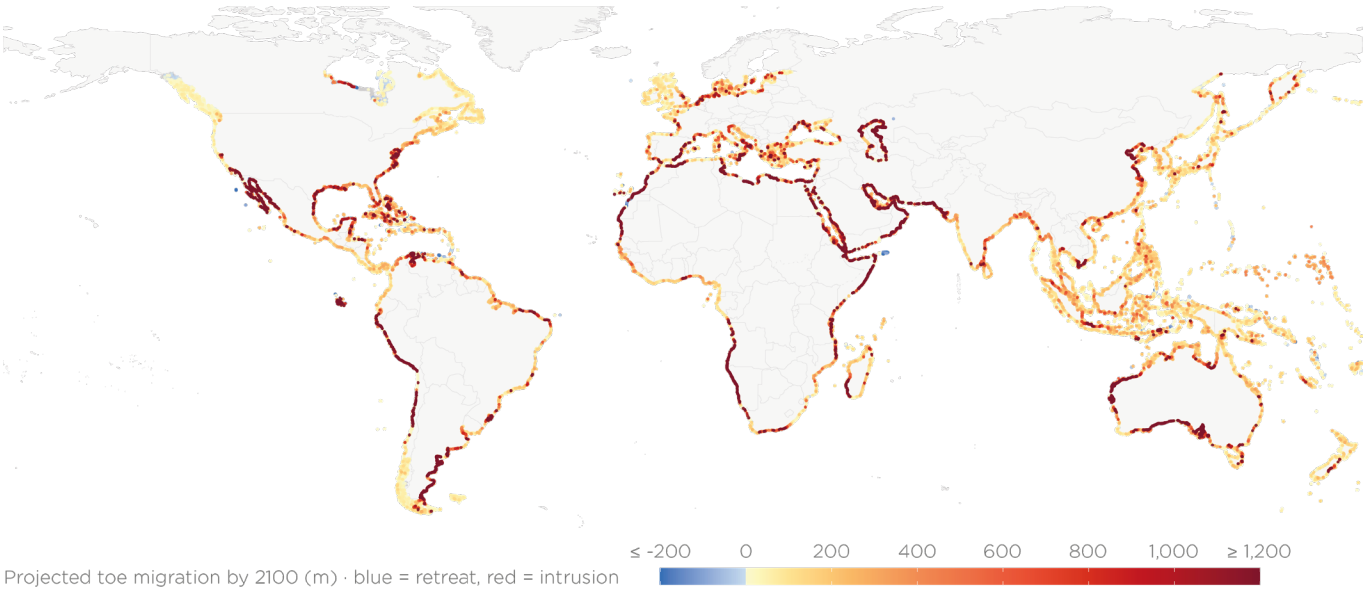
Source: UN Women author's calculation based on IHME Child Growth Failure (2019). Retrieved on 1 September 2026 from: Child Growth Failure | Institute for Health Metrics and Evaluation; Global administrative boundaries series (GADM 3.6). Retrieved on 1 September 2026 from: Global administrative boundaries series (GADM 3.6) - Datasets - "FAO catalog"; poverty held constant on the Relative Wealth Index (VECTOR). Retrieved on 1 September 2026 from: Relative Wealth Index (vector) | Data | GeoHub; Thorslund, J. & M.T.H. van Vliet (2020). A global slanity dataset of surface water and groundwater measurements from 1980-2019. Retrieved on 1 September 2026 from: Thorslund, J; van Vliet, MTH (2020): A global salinity dataset of surface water and groundwater measurements from 1980-2019; Micro-Estimates of Wealth for All Low- and Middle-Income Countries, CEGA, 12 January 2022. Retrieved on 1 September 2026 from: Micro-Estimates of Wealth for All Low- and Middle-Income Countries | CEGA.

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Brazil and India playing a key role. In both countries, large extensions along the coastlines showcase similar levels of soil salinization and underweight prevalence rates, pointing to the fact that geographical factors play a key role. But it is also important to note that salinity is just one of many contributing factors to the weight of newborns. Social norms, nutrition and sociodemographic characteristics also matter substantially. In India, for instance, the high underweight prevalence rates in Gujarat province are linked simultaneously to salinization, inadequate diets, distance to healthcare facilities in rural areas, and other factors. These findings, nonetheless, help to identify coastal salinity as a measurable dimension of newborn health, which warrants closer attention in countries where the correlation is significant. These data should be used to support two practical policy steps – monitoring newborn outcomes in high-salinity coastal districts and commissioning district-level studies to test whether reducing salinity exposure, through improved water and soil management, yields measurable gains for maternal and newborn health.

In light of the climate crisis, monitoring associations between salinity and pregnancy outcomes remains a key priority. Projections show that globally, nearly 77 per cent of the coastline is expected to undergo measurable salinization by 2100 (**FIGURE 12**).[9] Thus, preparing targeted solutions for pregnant women could contribute substantially to the health outcomes of pregnant mothers and newborns.

FIGURE 12. Projected coastal saltwater intrusion by 2100 (meters)



Note: The map shows the projected landward migration of the freshwater–saltwater interface (the "toe") in coastal watersheds worldwide by 2100, under a scenario combining sea-level rise and groundwater recharge change. Each dot represents one coastal watershed, plotted at its coordinates on a Robinson projection. Colour shows projected toe migration in metres: positive values (red) indicate saltwater intrusion (landward movement) and negative values (blue) indicate retreat (seaward movement), with the scale centred on zero; the scale is fixed and values outside its range are shown at the nearest extreme. Values are modelled projections for 2100 derived from a one-dimensional analytical framework, not present-day salinity measurements. Absolute magnitudes are highly uncertain, particularly in low-lying deltaic settings, and should be read as indicative of relative exposure rather than precise distances. Watersheds for which the model returned no solution are not shown. The underlying data are distributed under a CC-BY-NC-SA license. Source: UN Women author's adaptation from Adams et al. (2024). Climate-Induced Saltwater Intrusion in 2100: Recharge-Driven Severity, Sea Level-Driven Prevalence. Geophysical Research Letters, Vol. 51, Issue 22.

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Coastal Relocation May Worsen Women's Exposure to Violence and Harmful Practices

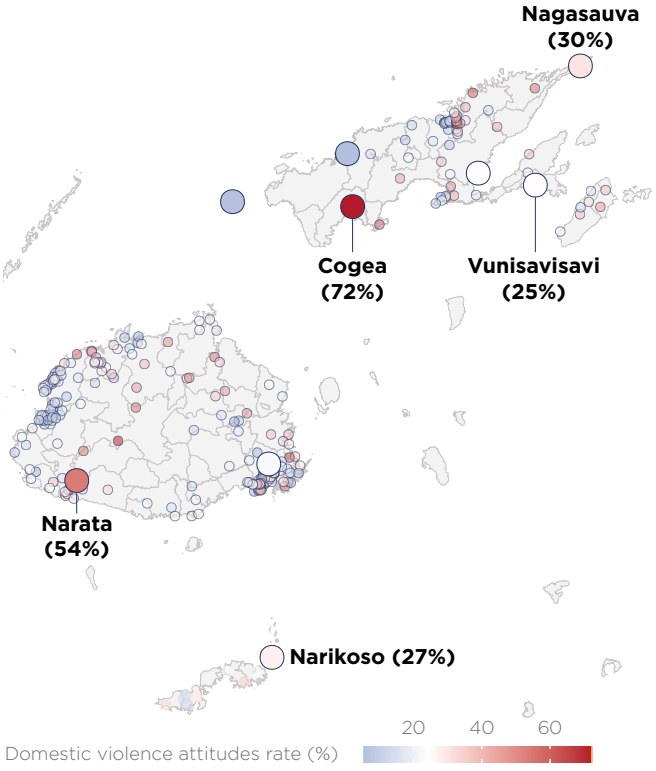
Sea level rise and other consequences of climate change are key drivers of relocation, migration and asylum-seeking among coastal communities. Displacement often triggers stressful situations among those displaced, coupled with concerns about discrimination and safety, which may translate into disproportionate exposure to violence against women and girls in host communities.

Fiji is one of the few Pacific Island countries that has interoperable data on climate-related relocation, gender-based violence and other harmful practices. It shows that nine major villages have undergone relocation in recent years or are currently undergoing relocation, largely to locations further inland (**FIGURE 13**).[10] Attitudes justifying domestic violence vary widely across the nine relocation-affected communities. In two communities, Cogea and Narata, the majority of women believe partner violence is justified, well above the national average of 24 per cent. Overall, the proportion is higher in relocation-affected communities (28 per cent) than in other areas. In five of the nine villages, attitudes supportive of domestic violence are above the national average of 24 per cent; in other words, as many as 25 to 72 per cent of women in villages that have undergone relocation believe it is justified for a man to beat his wife (**FIGURE 14**). The differences, however, are not statistically significant due to the small populations sampled in these villages. Despite the small sample sizes, these observed differences highlight potential

FIGURE 13. Geographic distribution of nine climate-related relocation communities in Fiji, 2026



FIGURE 14. Proportion of women who agree that wife beating is justified in Fiji (percentage), 2021



Note (Figure 14): White marks the national average of 24 per cent on the colour scale. Blue shows clusters below the national average, and red shows clusters above the national average. Larger circles with a black outline mark the nine communities affected by relocation at their village locations, coloured by the rate pooled across the Fiji MICS 2021 clusters linked to each community. These clusters may lie some distance from the village itself.

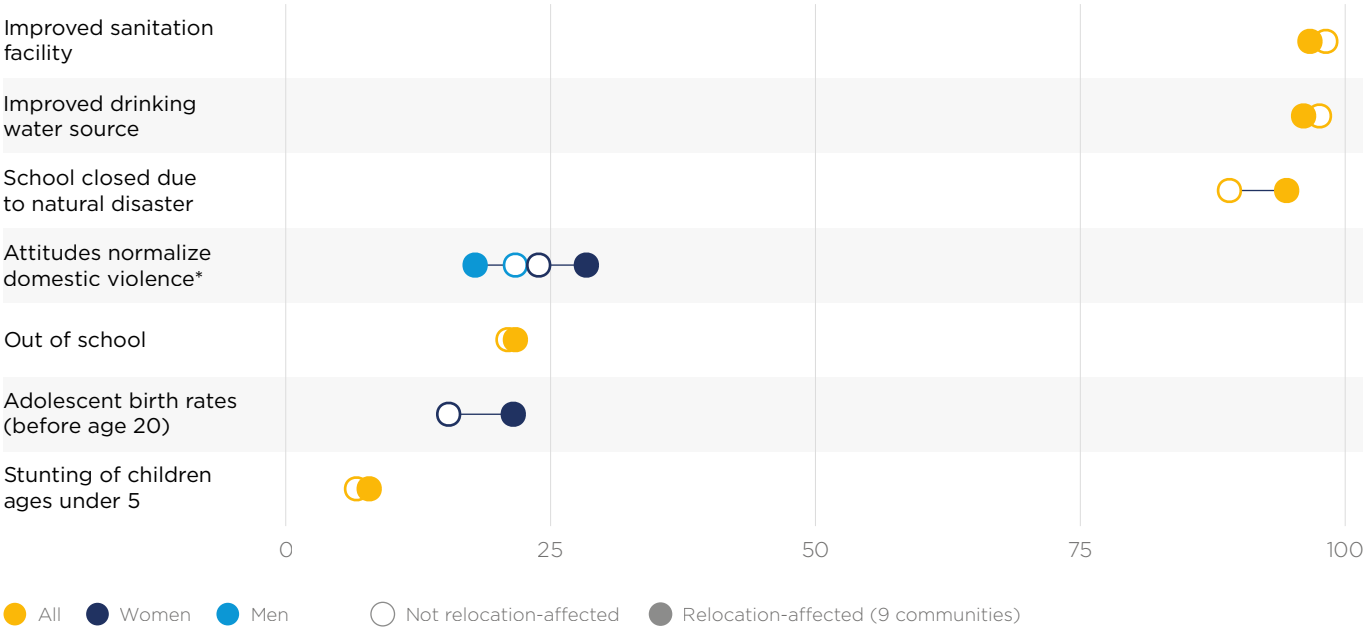
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vulnerabilities that warrant further investigation. Typically, where women's exposure to gender-based violence is higher, attitudes of acceptance and the normalization of violence against women are more prevalent. Multiple factors may drive violence against women within the home or in public spaces. Key among these are social and cultural norms, women's limited agency in the home (driven by differences in age, employment status and income gaps between women and their partners), and overall stability and safety in host communities, among many others.

Other harmful outcomes, such as adolescent birth rates, are even more prevalent than gender-based violence in displaced communities, and significantly higher than the national average (**FIGURE 15**). In Fiji, across displaced communities, adolescent birth rates were 44 per cent higher than the national average in 2021 (45 births per 1,000 women aged 15-19 in displaced communities, compared to 31 births per 1,000 women aged 15-19 on average nationally).

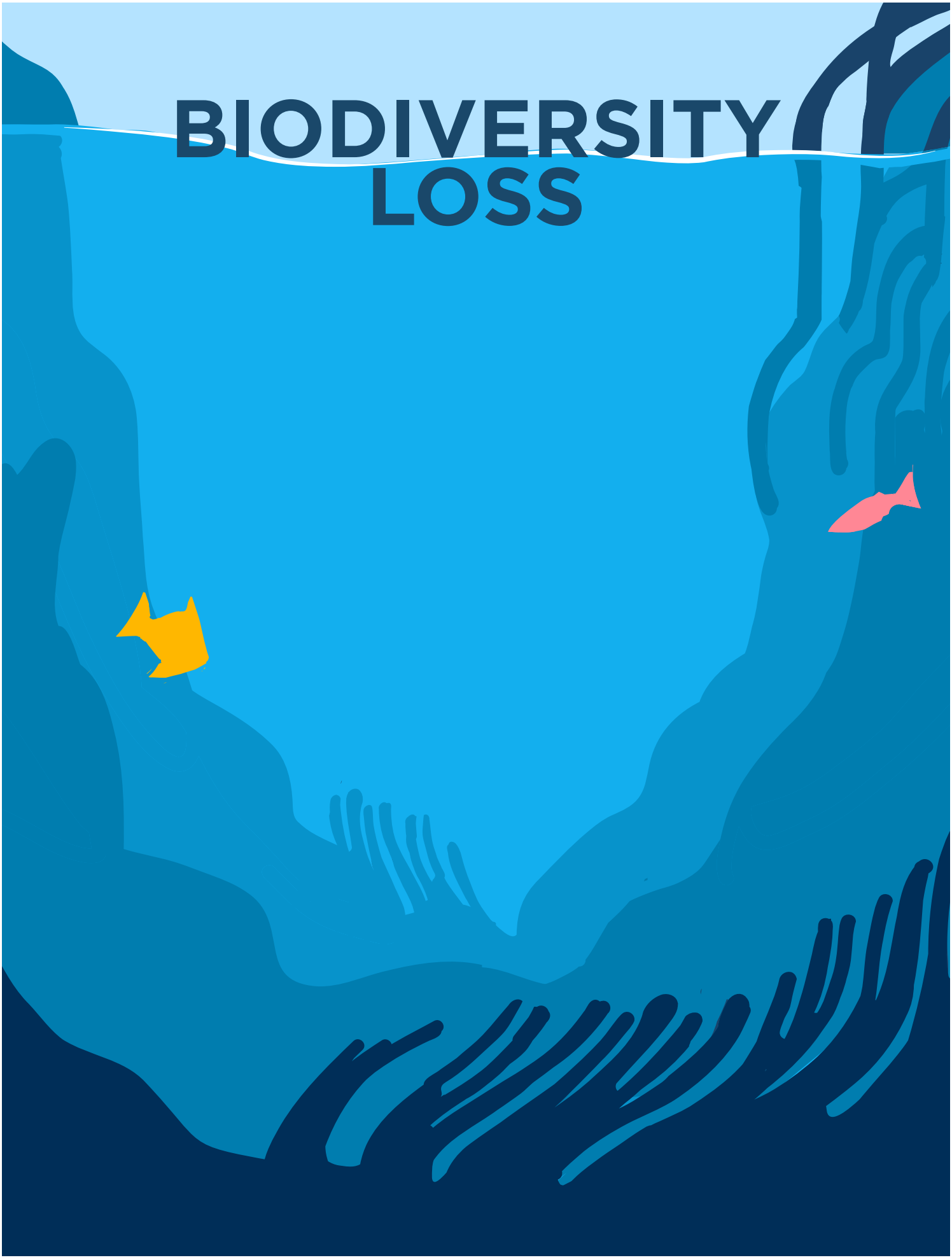
Differences in agency are also a known driver of adolescent pregnancy. Young women and brides often lack the power needed to negotiate safe consensual sex with their older partners, and restrictive abortion laws and social norms contribute to forcing adolescent girls, including those who are survivors of sexual violence, to carry unwanted pregnancies to term.[11] Other factors may compound this challenge. For instance, 95 per cent of children in displaced communities face school closures due to natural hazards, compared to 90 per cent on average in Fiji. Young girls may need to walk longer distances to reach school or spend more time at home or in villages and in host communities with caretakers, placing them at increased risk of gender-based violence or enabling additional opportunities for teenage pregnancies. Further analysis, including utilizing specialized survey data on prevalence of violence, is needed to understand the risks and drivers of violence against women during displacement and in relocation-affected communities.

FIGURE 15. Proportion of people who experienced different impacts in relocation-affected communities, compared to other areas in Fiji (percentage), 2021



* believe it is justified if she goes out without telling him, neglects the children, argues with him, refuses sex with him, or burns the food.

Note: Only two indicators shown are statistically significant: adolescent first birth (p=0.01) and school closure due to natural disasters (p=0.01). Source: Fiji Multiple Indicator Cluster Survey (MICS) 2021. Fiji Bureau of Statistics. Retrieved on 3 September 2026 from: Multiple Indicator Cluster Surveys (MICS) 6 - Fiji Bureau of Statistics; Fiji Bureau of Statistics Relocation Projects Register.


BIODIVERSITY
LOSS

The ocean hosts 78 per cent of all animal biomass,[12] providing a lifeline for our planet's health, contributing to food security, and guaranteeing global ecosystem services. In addition, marine biodiversity is essential for sourcing genetic material for critical medications. Coral reefs and the seabed are also biological hotspots, which allow ecosystems to recover from the many environmental stressors that threaten them. Biodiverse coastal ecosystems also protect coastlines by absorbing energy from wave action and reducing the impacts of storm surges on coastal communities.

Human activity is putting marine biodiversity at stake and, with it, the health of the planet at risk. Global fishing activities are altering the whole marine environment, from seafloors to surface waters. The use of destructive fishing practices, such as bottom trawling, gillnets and other non-selective methods, coupled with overfishing, seabed exploration and illegal, unreported and unregulated (IUU) fishing, among other activities, are causing devastating damage. As a result, 36 per cent of fish stocks are overfished globally,[13] and less than 66 per cent are within biologically sustainable limits.[14]

Coastal development, agricultural and industrial runoff, and other activities are further contributing to the rapid destruction of coastal ecosystems, including mangroves and seagrasses, and the broader marine environment. All of this, coupled with pollution and related acidification, affects the health of the marine food web, including corals, molluscs and plankton, which are essential for the survival of other marine species. The loss of key species is altering the predator-prey balance and leading to shifts in entire biomes. Depletion of filter feeding marine life and coastal vegetation is also limiting the ocean's capacity to detoxify water, and carbon sinking efficiency[15] is decreasing, as is the ocean's protective role as a natural buffer from storm surges.

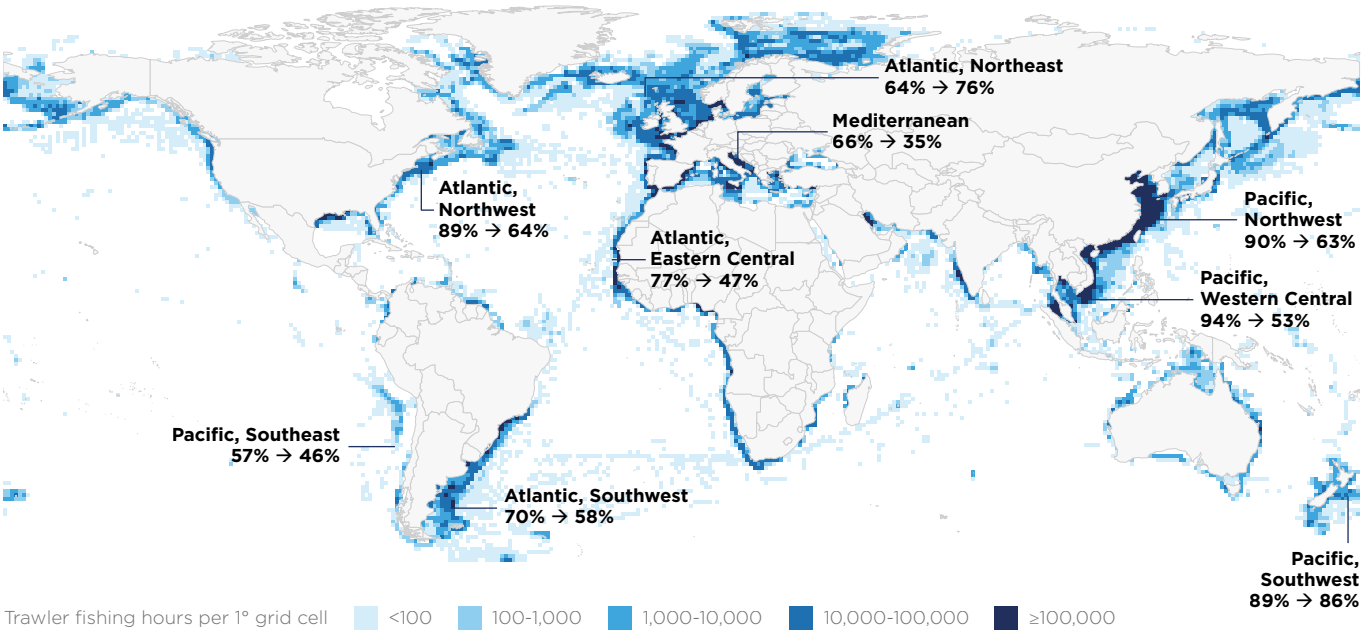
Women and men are being both affected, albeit differently, by these phenomena, but women are facing steeper barriers when it comes to managing marine resources. The impacts on food security disproportionately affect women, even though women contribute less than men to the loss of marine biodiversity by largely engaging in small-scale fisheries and often relying on gleaning, instead of more destructive fishing methods. Women's resilience to these threats, however, is being challenged by existing gender inequalities that place women at a disadvantage when it comes to accessing and managing natural resources. For instance, although women are holders of traditional knowledge in many communities, they rarely engage substantially in decision-making around marine resource management.

Declining Fish Populations Put Women in Coastal Areas At Risk of Malnutrition

Unsustainable fishing practices, urbanization, climate change and pollution are affecting the availability of marine life and prompting species to migrate outside of their known habitats; as a result, only 65 per cent of the world's fisheries are considered sustainable. In the Mediterranean and Black Sea, fish stocks have been even further depleted, with only 35 per cent remaining within biologically sustainable limits. The same is true in the Eastern and Central Atlantic, where 47 per cent of fish stocks remain within sustainable limits. Even in areas where fish have traditionally been abundant, stocks are rapidly declining. For instance, over the past two decades, Northwest Pacific waters around China, Japan, Korea and a part of Russia have seen some of the steepest declines in fish stocks, with rates of stocks within biologically sustainable limits dropping from 90 per cent in 2004 to 63 per cent in 2021,[16] Concurrently, these are some of the same waters that see the largest fishing intensity. Data generated from Automatic Identification Systems (AIS) from ships shows the intricate links between fishing effort intensity, which largely translates into the presence of bottom trawlers, and ocean degradation. The presence of heavy industrial fishing activity has consequential and differentiated impacts on women's and men's nutritional patterns (**FIGURE 16**).

In areas where bottom trawlers abound, optical satellites show sediment plumes, which block the sunlight and stunt sea plants; while high-resolution bathymetry displays deep scars on the seabed, leading to large fish disappearing in favour of scavengers.[17] Not only is bottom trawling contributing to the collapse of fisheries and loss of biodiversity, but its impacts are

FIGURE 16. Fishing effort intensity estimates of trawlers (hours), 2022-2026, and share of fish stocks within biologically sustainable levels (percentage), 2004-2021



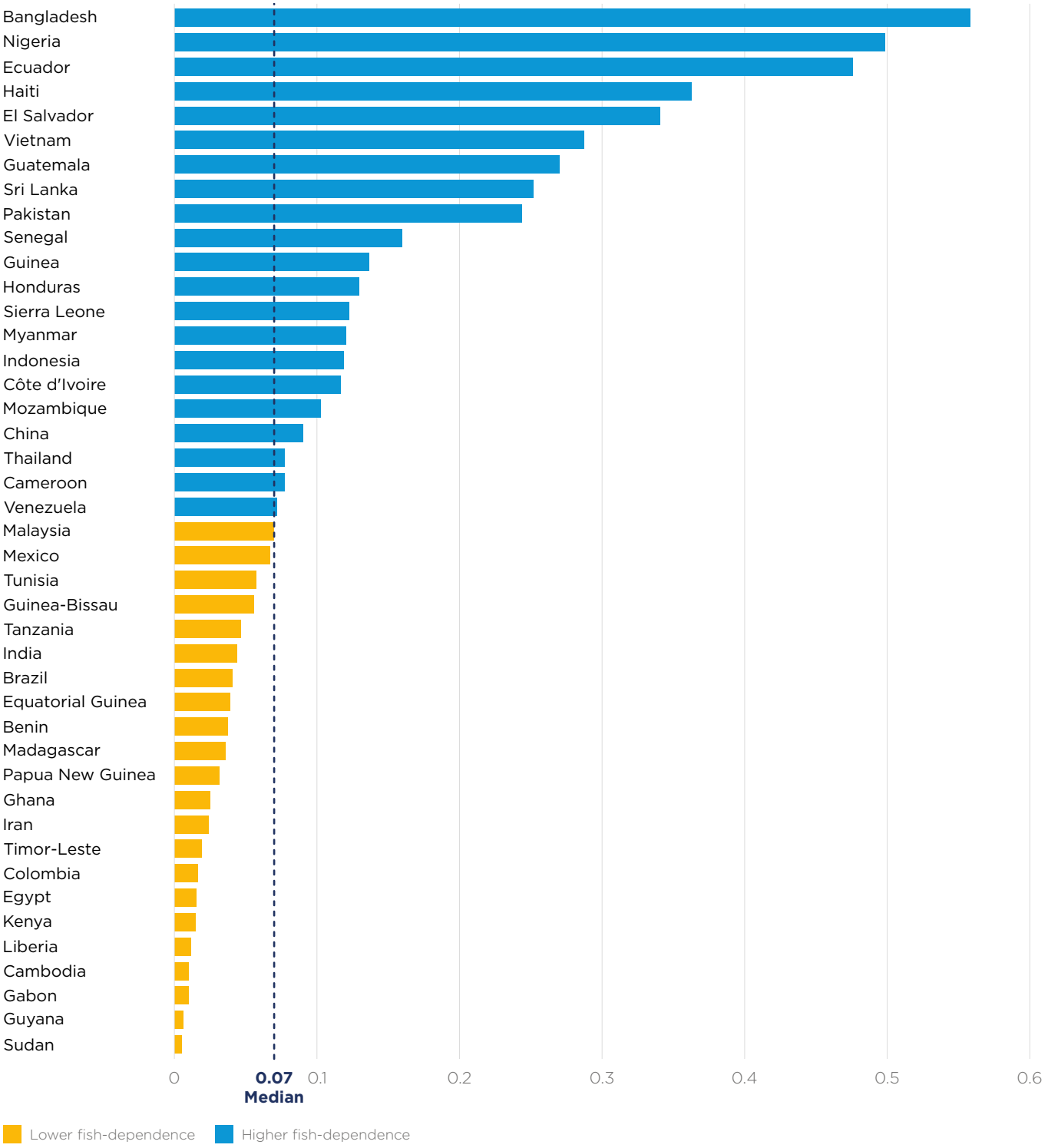
Note: The map shows apparent fishing efforts cumulated from 1 January 2022 to 1 January 2026, recorded through the AIS and filtered to vessels classified as trawlers. Global Fishing Watch uses vessel information and machine learning models to identify fishing vessels and gear types, and to estimate when vessels are engaged in fishing, based on their movement patterns. Apparent fishing effort is measured as estimated fishing hours, aggregated spatially and over the full four-year period to show fishing intensity. Darker blues indicate higher levels of apparent trawling effort. AIS coverage is higher for larger vessels and may not capture fishing activity by smaller vessels that do not transmit AIS. Callout labels show the share of fish stocks within biologically sustainable levels in each Food and Agriculture Organization of the United Nations (FAO) Major Fishing Area, comparing 2004 and 2021 (SDG Indicator 14.4.1). Source: Global Fishing Watch. Retrieved on 19 August 2026 from: Global Fishing Watch Map.

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also extremely long-lasting; in some areas, no recovery can be seen after 25 years.[18] For ocean-dependent communities, this translates into loss of livelihoods and challenges to food security, particularly for women and in countries where a large share of the population depends on artisanal fishing for their livelihoods (**FIGURE 17**). For instance, in Bangladesh, Ecuador and Nigeria, industrial fisheries, including commercial trawlers, are rapidly displacing small-scale artisanal fishers. In others countries, such as China, Ghana, Indonesia, Liberia and Senegal, high volumes of bottom trawling by foreign and domestic fleets have displaced large amounts of artisanal and small-scale fishers, by depleting stocks and encroaching in protected or reserved fishing areas.

As a result, coastal communities are increasingly encountering challenges to maintain their food security. In times of scarcity, social norms dictate that women reduce or limit their food intake in favour of feeding other family members; thus, across almost all countries with available data, women living near areas showing high levels of fishing effort intensity are more likely than other women to experience high levels of anaemia, which can be a strong indicator of inadequate dietary intake (a form of malnutrition) (**FIGURE 18**). The disproportionate impact of declining fish populations on women's health is a key concern, as anaemia is a driver of numerous health conditions, including cardiovascular disease, brain fog and pregnancy complications (such as pre-

FIGURE 17. Coastal artisanal vessel density by country (vessels per square km), 2017



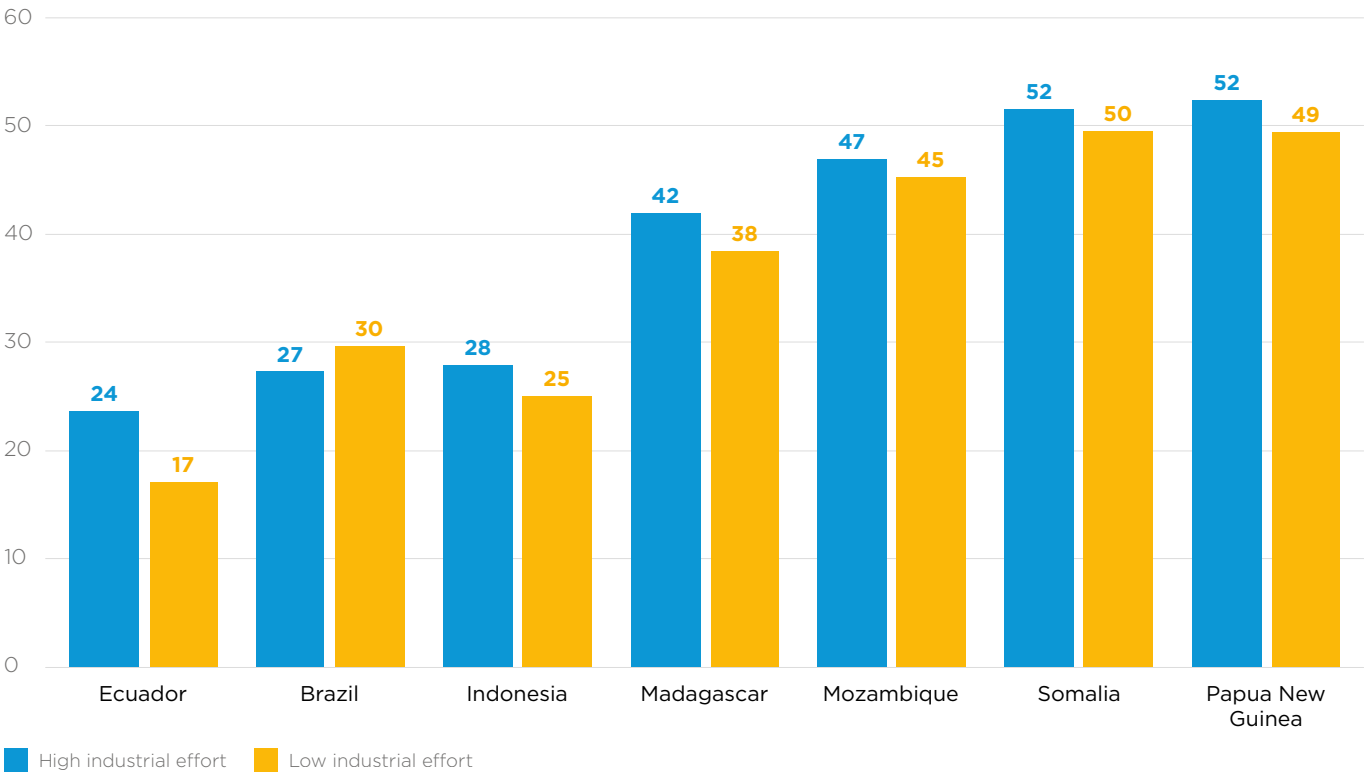
Note: Vessel density estimates are based on 2017 data and calculated from small artisanal boats only (length categories: < 6 metres and 6-12 metres). Countries are ranked by artisanal vessel density, which is a measure of how intensively small-boat artisanal fleets operate within a country's exclusive economic zone. Values are modelled spatial estimates, not directly observed vessel counts. Countries above the median (blue) have higher artisanal fishing dependence; whereas those below (yellow) have lower dependence. Sources: Clawson, G., J. Blanchard & C. Novaglio (2025). Global Fishing Effort Model Data and Shiny App (v10). Retrieved on 3 September 2026 from: Global Fishing Effort Model Data and Shiny App | Zenodo; Institute for Marine and Antarctic Studies, University of Tasmania. Retrieved on 3 September 2026 from: Global Fishing Effort Mapper interactive tool.

term births, low birthweight, higher risk of bleeding and infections after delivery).

An added challenge for women pertains to their own artisanal fishing activities, as the presence of bottom trawlers and other forms of industrial fleets contributes to the scarcity of marine life, which increasingly results in larger amounts of by-catch as target species disappear.

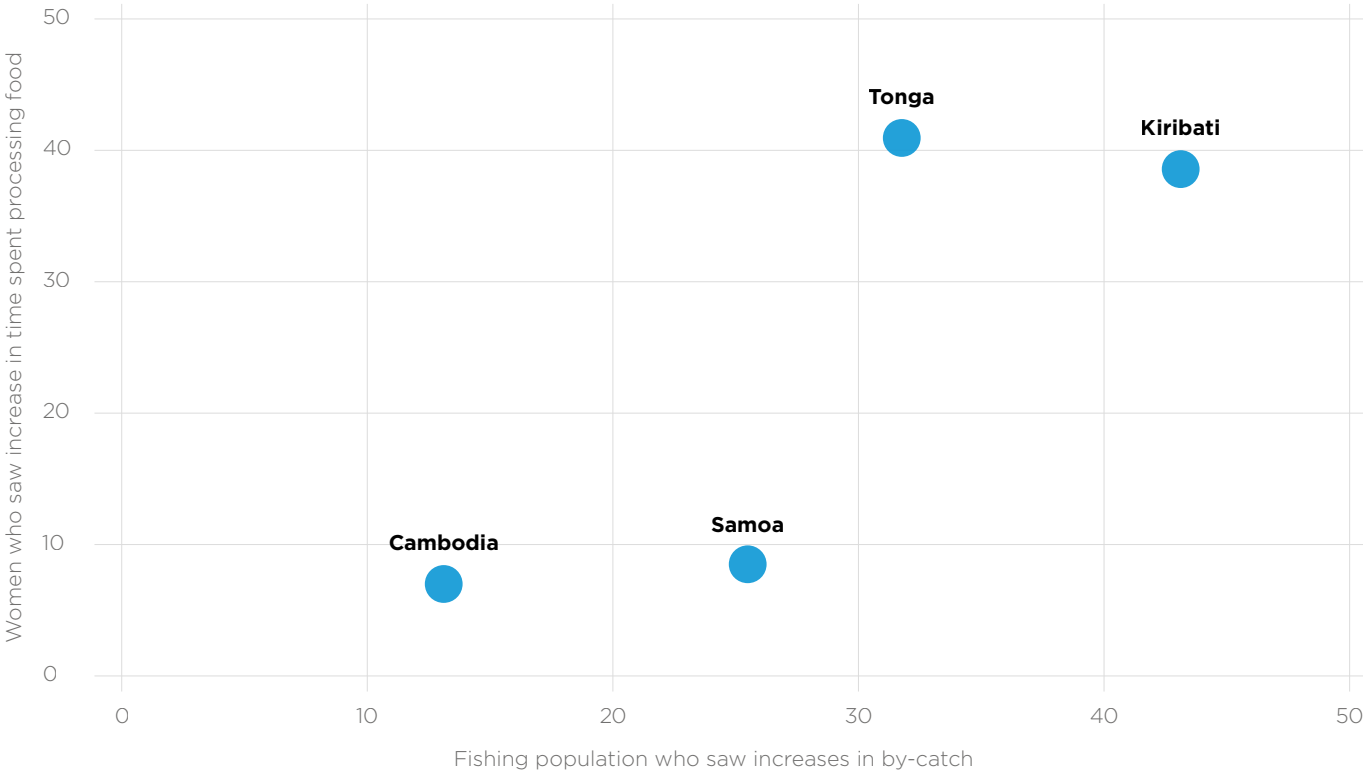
In turn, women are seeing worsening time burdens to clean and process catches, which is an activity that is largely concentrated in the hands of women, regardless of whether it is women or men who harvest the marine life. For instance, in countries such as Samoa and Tonga, where bycatch has increased substantially over the past decade, roughly 40 per cent of women are noting lengthened processing times (**FIGURE 19**).

FIGURE 18. Proportion of women aged 15-49 with anaemia, 2010-2019, by level of industrial fishing effort (percentage), 2017



Note: The figure compares the prevalence of anaemia (mean) between coastal pixels with high and low levels of industrial fishing effort, restricted to within 20 km of the coastline. Pixels are classified using the 25th percentile of nominal active industrial fishing hours across all nearshore pixels as a threshold. High industrial fishing effort is pixels above the 25th percentile threshold; whereas low industrial fishing effort is pixels below the 25th percentile threshold. Of the 54 countries in the underlying anaemia and chlorophyll-a analysis, 42 have industrial fishing effort within 20km of the coastline; among these, only 7 countries have at least 30 pixels in each group and are included in the figure. Source: UN Women calculations are based on IHME Global Burden of Disease modelled anaemia estimates and modelled industrial fishing effort from Clawson, G., J. Blanchard & C. Novaglio (2025). Global Fishing Effort Model Data and Shiny App (v10) and Institute for Marine and Antarctic Studies, University of Tasmania. Retrieved on 3 September 2026 from: Global Fishing Effort Mapper interactive tool.

FIGURE 19. Proportion of people noting increases in bycatch and proportion of women engaging in pre- and post-harvest operations, noting lengthened time on fish processing, latest available year (percentage)



Source: UN Women & Tonga Statistics Department (2023). Gender and Environment Survey 2022. Tonga Statistics Department: Nuku'alofa, Kingdom of Tonga; UN Women & Samoa Bureau of Statistics (2024). Gender and Environment Survey 2023. Samoa Bureau of Statistics: Apia, Samoa; UN Women & National Institute of Statistics (2025). Gender and Environment Survey 2024. UN Women: Phnom Penh, Cambodia; UN Women & Kiribati National Statistics Office (in press). Gender and Environment Survey 2025. Government of Kiribati: Tarawa, Kiribati.

BOX 1. GENDERED DIMENSIONS OF ILLEGAL, UNREPORTED AND UNREGULATED (IUU) FISHING

Illegal fishing includes activities from large-scale poaching by industrial vessels to unauthorized fishing in protected areas. There are distinct gender dimensions to illegal fishing. Since fishing at sea is a male-dominated occupation globally, men are primarily involved in fishing operations and are more directly involved in IUU fishing; whereas women tend to be concentrated in indirect and informal components of fisheries value chains, including financing, processing and selling.[19]

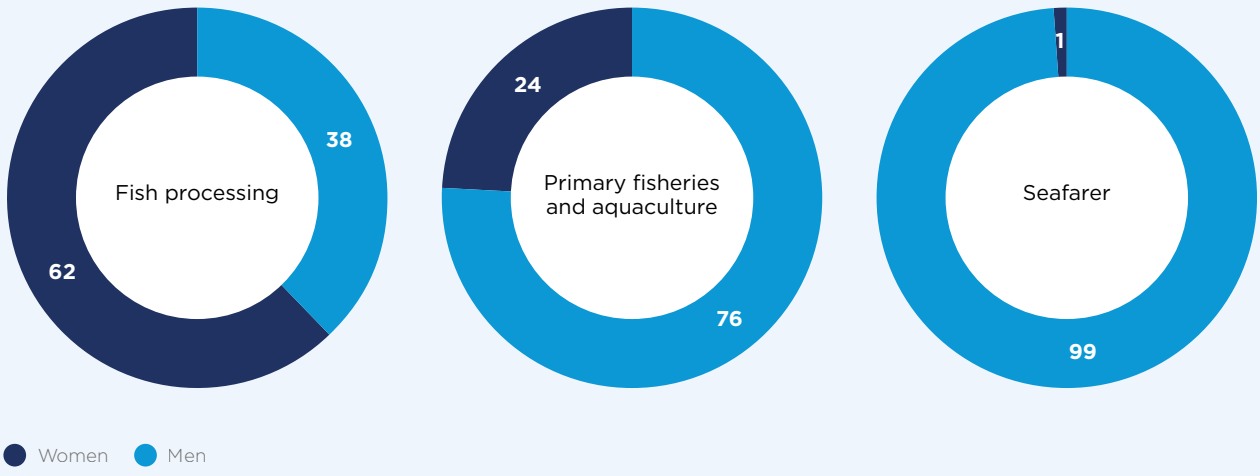
In 2022, women made up only 24 per cent of all workers directly engaged in the primary fisheries and aquaculture sector (Figure 20). In capture fisheries, particularly in offshore and industrial settings, women's representation is even lower. A seafarer workforce report revealed that women make up only 1.3 per cent of the global seafarer workforce, which includes all commercial vessels, such as fishing boats.[20] This indicates that roughly 99 per cent of seafarers are men. As a result, those apprehended for illegal fishing, whether on distant-

water factory ships or unauthorized local vessels, are predominantly men. Many documented cases of IUU fishing involve crews composed entirely of men, often under the leadership of male captains and financiers. The limited presence of women on fishing vessels is driven by industry practices and the physically demanding and lengthy duration nature of the work at sea, which means that men are responsible for the vast majority of illegal fishing operations.

Although few women are on fishing boats, women are heavily involved in ancillary parts of the illegal fishing economy. Women staff roughly half of all fisheries jobs, including processing, trading and other land-based roles.[21] This means that illegally caught fish, once brought to shore, often pass through the hands of women in processing plants, markets and distribution. Women may not be aware that the product was illegally obtained, but are still part of the value chain. In some coastal communities, women, as fish buyers and vendors, may knowingly purchase fish from unauthorized sources to sustain their livelihoods. Either way, women's participation in the fishing value chain is usually in low-paid, labour-intensive jobs; as a result, they bear the economic brunt when fisheries are overexploited by IUU catches.

Although large-scale illicit fishing is male-led, women do participate in certain IUU fishing activities, particularly in small-scale and subsistence contexts. A striking example comes from inland fisheries in Zimbabwe, particularly the protected area of Gonarezhou National Park, where 82 per cent of people arrested for illegal fishing in rivers were women from local communities.[22] These women who were mostly poor and middle-aged, with little formal education were illegally catching fish to feed their families or to earn income, as fish were one of the more accessible resources compared to large wildlife. This case highlights that women can also be direct actors in IUU fishing, particularly when socioeconomic pressures are high, while men's contributions to IUU fishing usually take place through industrial fishing operations and out at sea where law enforcement is more challenging.

Proportion of workers in fisheries and maritime occupations by sex (percentage), 2024



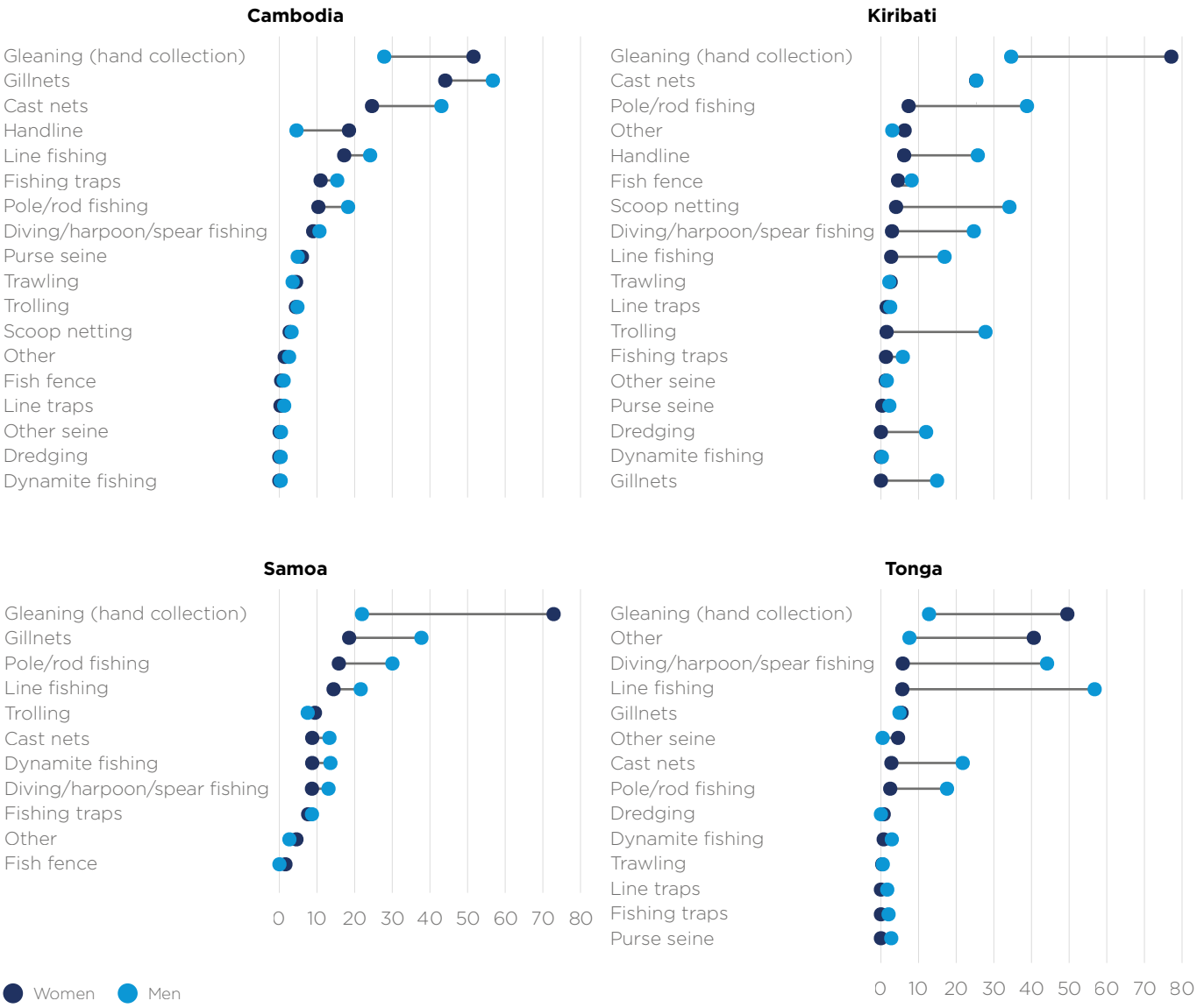
Sources: Food and Agriculture Organizations of the United Nations (2024). *The State of World Fisheries and Aquaculture: Blue Transformation in Action.* FAO: Rome, Italy. Retrieved on 3 September 2026 from: The State of World Fisheries and Aquaculture 2024; BIMCO & International Chamber of Shipping (2026). *Seafarer Workforce Report: The global supply and demand for seafarers in 2026.* Witherby Publishing Group Ltd: Scotland, UK. Retrieved on 3 September 2026 from: The BIMCO ICS Seafarer Workforce Report: The Global Supply and Demand for Seafarers in 2021.

Ocean Acidification Challenges the Resilience of Women Artisanal Fishers

The ocean's critical carbon sequestration role is essential to the health of planet Earth, but it comes at a cost, as carbon changes the acidity of ocean water, leading to coral reef decline and ocean stratification, which reduces vertical mixing. As a result, reef-dependent marine life is displaced, the marine food web is altered, and molluscs, crustaceans and echinoderms suffer from stunted growth and damage of their skeletal structures.

For women fishers, the majority of whom are in small-scale fisheries, this poses a disproportionate challenge.[23] **FIGURE 20** shows that most women

FIGURE 20. Proportion of fishing/marine harvesting population using different fishing methods, by sex, latest available year (percentage)



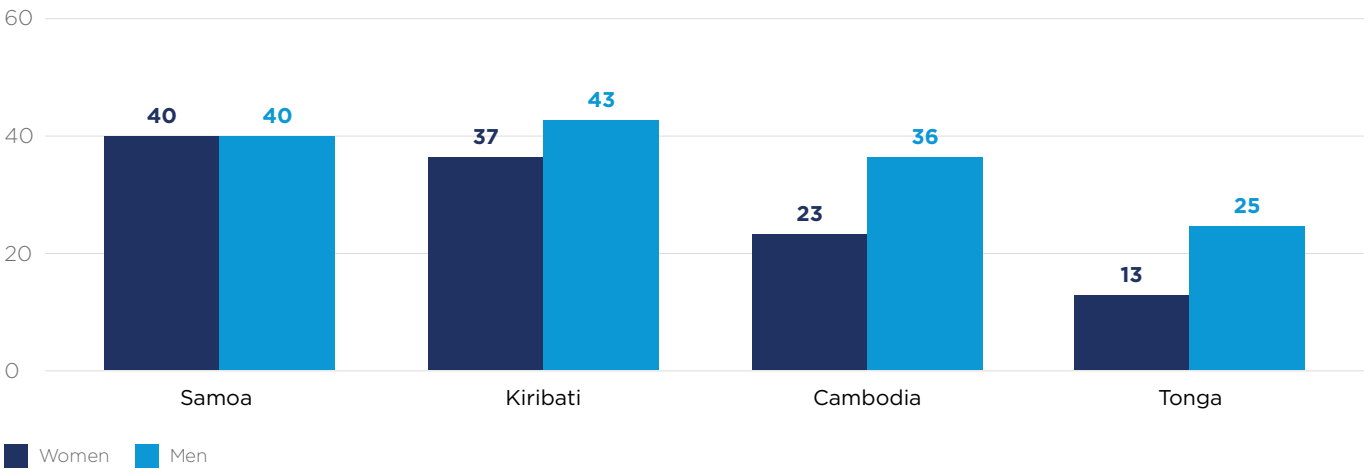
Source: UN Women & Tonga Statistics Department (2023). Gender and Environment Survey 2022. Tonga Statistics Department: Nuku'alofa, Kingdom of Tonga; UN Women & Samoa Bureau of Statistics (2024). Gender and Environment Survey 2023. Samoa Bureau of Statistics: Apia, Samoa; UN Women & National Institute of Statistics (2025). Gender and Environment Survey 2024. UN Women: Phnom Penh, Cambodia; UN Women & Kiribati National Statistics Office (in press). Gender and Environment Survey 2025. Government of Kiribati: Tarawa, Kiribati.

fishers rely on gleaning (i.e., hand harvesting) as their prime harvesting method, which means they harvest in or near the coast and focus primarily on molluscs, echinoderms, crustaceans, cephalopods and marine plants. These are some of the most affected species by ocean acidification; thus, women are disproportionately seeing the impacts of acidification. In addition, women's reliance on gleaning means that they are often unable to change harvesting locations if catches decrease. Further, barriers to move to different harvesting sites are compounded by women's lack of ownership of gear and vessels, concerns around exposure to violence at sea, and limited flexibility to shift locations due to domestic and care workloads. Across countries with available data, men are 1.6 times as likely as women to report being able to change harvesting locations to cope with decreasing catches (**FIGURE 21**).[24]

In Pacific Island countries and other small island developing states (SIDS), people are truly at the frontlines of the ocean acidification crisis, as large shares of those engaged in fishing do so through artisanal methods (**FIGURE 20**), and their economies, food supplies and cultures rely substantially on coral reef ecosystems. Across countries with available data, acidification is obvious in the form of reductions in the pH of surface water (**FIGURE 22**). In the face of acidification, loss of coral reefs is leading to flooding, erosion, saltwater intrusion, and scarcity of protein in diets; this partially explains why in Samoa, for instance, as many as 40 per cent of people had to change fishing locations to maintain catches. Similarly, in Kiribati, where coastal reef fish and molluscs are the primary source of dietary protein,[25] acidification has prompted as many as 43 per cent of men to change fishing locations, while 37 per cent of women have been able to do so (**FIGURE 21**).

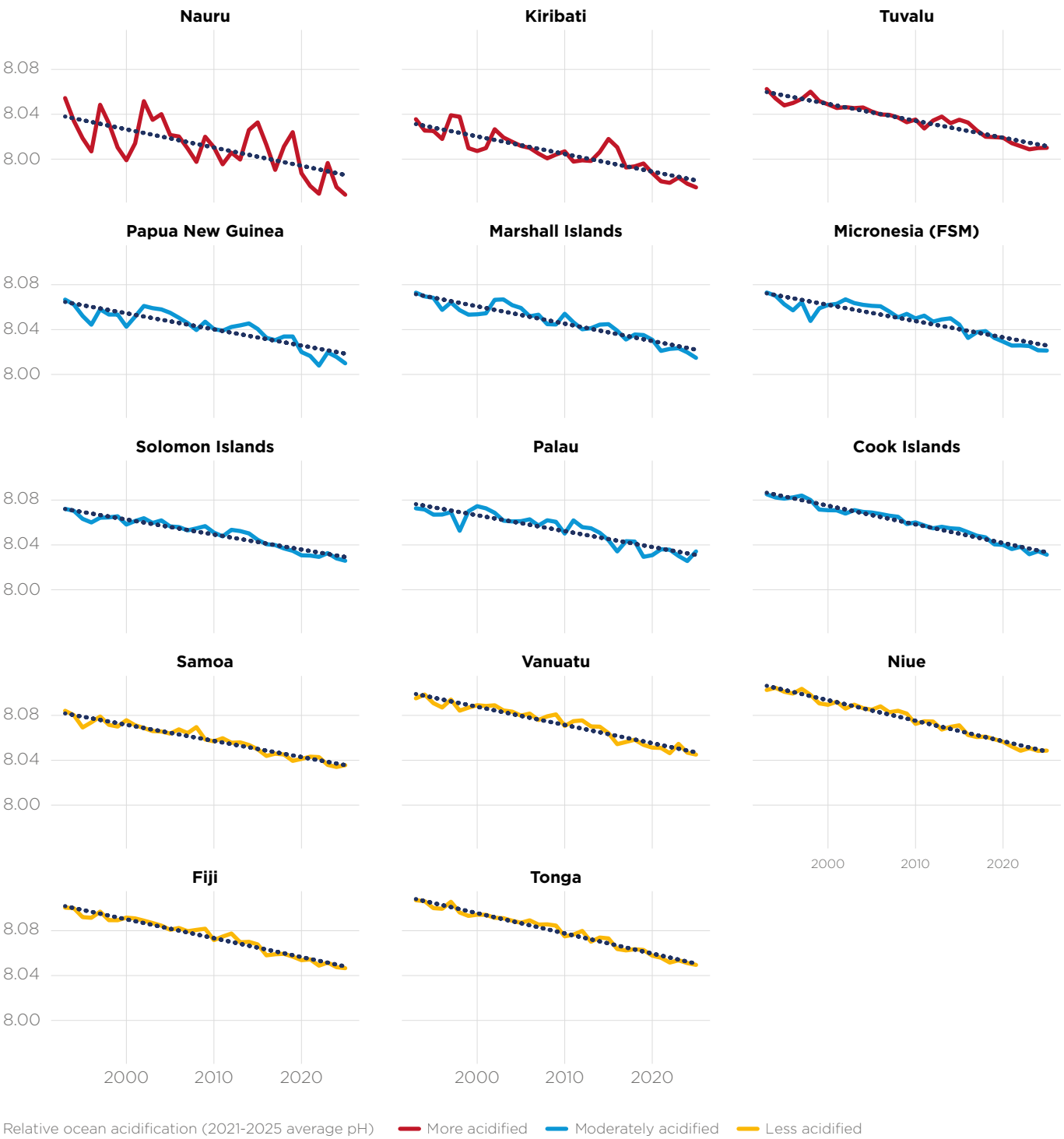
Ocean surface water pH data highlights the critical situation in Nauru, Kiribati and Tuvalu, where acidification is particularly dramatic. In each of these three countries, pollution-driven acidification is coupled with the effects of upwelling and currents, which push deeper, lower pH water to the surface, further compounding the chemical shift. Given that the three countries are almost entirely made up of low-lying coral atolls, their coral reefs and ecosystems are highly vulnerable to acidification, and the impacts are particularly detrimental for women who rely on coastal fisheries and have limited opportunities to switch locations or economic activities.

FIGURE 21. Proportion of the population who changed fishing/marine harvesting locations, by sex, latest available year (percentage)



Source: UN Women & Tonga Statistics Department (2023). Gender and Environment Survey 2022. Tonga Statistics Department: Nuku'alofa, Kingdom of Tonga; UN Women & Samoa Bureau of Statistics (2024). Gender and Environment Survey 2023. Samoa Bureau of Statistics: Apia, Samoa; UN Women & National Institute of Statistics (2025). Gender and Environment Survey 2024. UN Women: Phnom Penh, Cambodia; UN Women & Kiribati National Statistics Office (in press). Gender and Environment Survey 2025. Government of Kiribati: Tarawa, Kiribati.

FIGURE 22. Ocean surface pH in Pacific Island countries, 1993–2025 (pH scale)



Note: The solid line in each panel shows the country's annual mean surface pH; whereas the dashed line is a fitted linear trend (simple linear regression of annual pH against year), which shows the long-term direction of change. Countries were classified based upon the statistical distribution of their current (2021–2025 average) surface pH values. The mean pH across the 14 Pacific Island countries and territories was 8.0257, with a standard deviation of 0.0242. Countries more than 0.5 standard deviations below the mean (pH < 8.0136) were labelled "more acidified," countries within ±0.5 standard deviations of the mean (8.0136–8.0378) were labelled "moderately acidified," and countries more than 0.5 standard deviations above the mean (pH > 8.0378) were labelled "less acidified." Lower pH indicates greater relative ocean acidification. Source: Copernicus Marine Service. Global Ocean Biogeochemistry Hindcast. Retrieved on 3 September 2026 from: Global Ocean Biogeochemistry Hindcast | Copernicus Marine Service.

Mangrove Loss Exposes Pitfalls of Early Warning Systems

Mangroves are vital ecosystems that act as nurseries for marine life filter water from runoff, sequester carbon, helping in the fight against climate change and protect coastlines from erosion, storm surges and other hazards. As a result of agriculture, aquaculture, urbanization and climate change, among other pressures, mangrove forests are rapidly disappearing. In 2020 alone, the world lost 3.43 per cent of its mangroves; up from 1.72 per cent in 2007. The biggest losses are taking place in Western and Eastern Asia, where 14 per cent and 12 per cent, respectively, of mangroves were lost.[26] Besides the obvious impacts on coastal ecosystem services, this also carries important risks for human health and safety.

When mangroves disappear from coastal areas where human settlements exist, people's exposure to hazards increases, as mangroves typically shield coastal communities from wave action, flooding, erosion and sea level rise. To manage disaster risk, it is essential that communities located in mangrove loss hotspots are able to receive timely, accurate and comprehensive early warning information about impending hazards, along with adequate guidance on how to halt or manage mangrove loss.

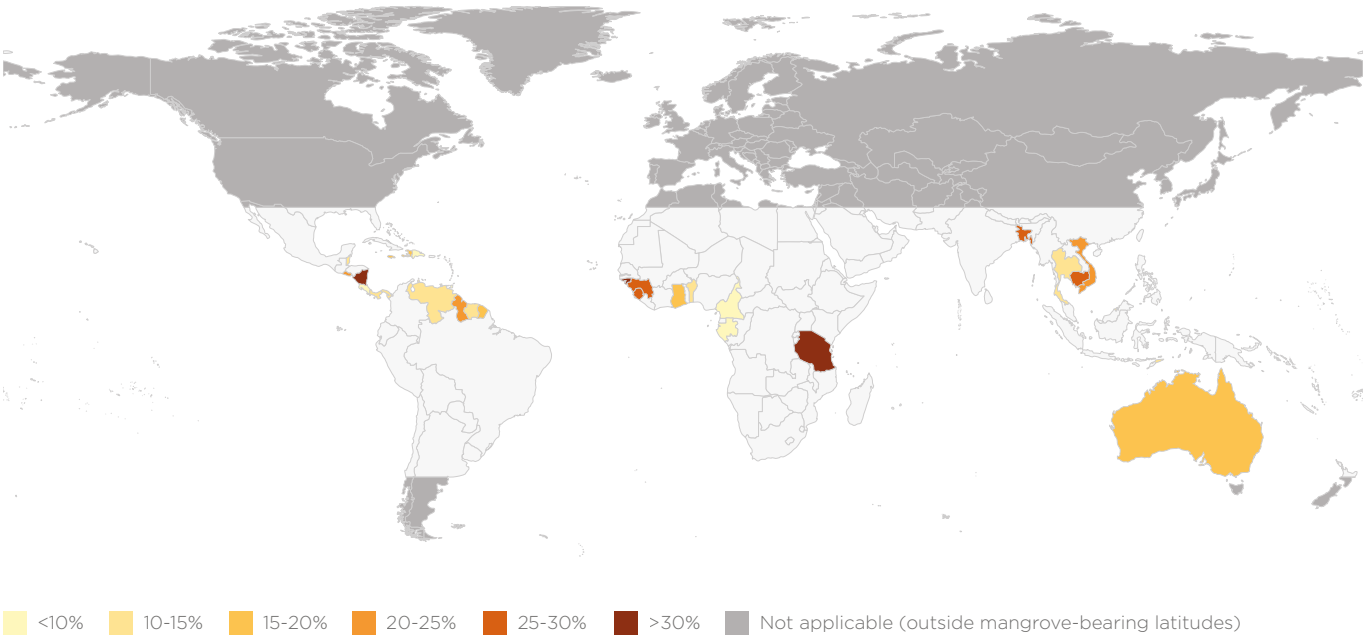
Data from Gender and Environment Surveys[27] suggests that, in almost all countries, early warning information is most commonly transmitted via media or on-line channels; thus, in order to access it, individuals must own or be able to use televisions, radios, phones and computers. Across countries with available data, populations living in mangrove loss areas in Bangladesh, Cambodia, Guinea-Bissau, Nicaragua, Sierra Leone and Tanzania face some of the highest risks, given that they are exposed to substantial mangrove loss and have limited access to electricity and mobile connectivity, which limits their access to early warning information (**FIGURE 23**).

There are, however, vast differences within countries. Specific areas where high flood risk overlaps with mangrove loss, low electrification and low connectivity face the highest challenges. For instance, in Bangladesh, major mangrove losses are being registered in the Sundarbans, particularly along inhabited fringe areas of Khulna. This area remains largely unpopulated, so increased exposure to hazards does not necessarily put large shares of the population directly at disaster risk. In comparison, in the Gulf of Thailand, heavily populated settlements sit directly next to mangrove loss areas, including parts of Bangkok, the capital city, and Samut Songkhram, which puts large shares of the population directly at disaster risk. While most of these dwellers have access to electricity and connectivity, which likely allows them to receive early warning information about floods, this is not the case in Ca Mau, in southern Viet Nam, where large shares of people live in mangrove loss areas at severe risk of flooding, and have limited access to electricity and mobile connectivity. These groups are at the highest disaster risk with little chance of preparing adequately to mitigate impacts (**FIGURE 24**).

Because women and men access early warning information and prepare for disasters differently, living in a mangrove loss area that is flood prone may have gender differentiated impacts. Women are less likely than men to use the Internet (71 per cent of women and 77 per cent of men had access globally in 2025) and to own a mobile telephone (78 per cent and 87 per cent, respectively; **FIGURE 25A AND 25B**).[28] Lack of access to the internet and mobile phones may limit women's opportunities to receive timely information and to prepare accordingly, even if they live in areas where connectivity is available. Thus, it is essential that governments diversify the sources of information and early warning platforms in flood-exposed priority hotspots where mangrove loss and flood risk render many people vulnerable. It is also important that efforts focus on enhancing women's access to connectivity, not only from an infrastructure development point of view but also by containing usage costs and enhancing their agency. While coverage by early warning systems is an important marker of hazard risk, actual access to early warning information may widely differ from coverage, which showcases the pitfalls of existing early warning systems.

In the case of slow onset hazards, such as mangrove loss or sea level rise, the likelihood of receiving

FIGURE 23. Proportion of inhabited areas with high mangrove loss, low electrification and low or unobserved mobile connectivity 2000-2016, (percentage)

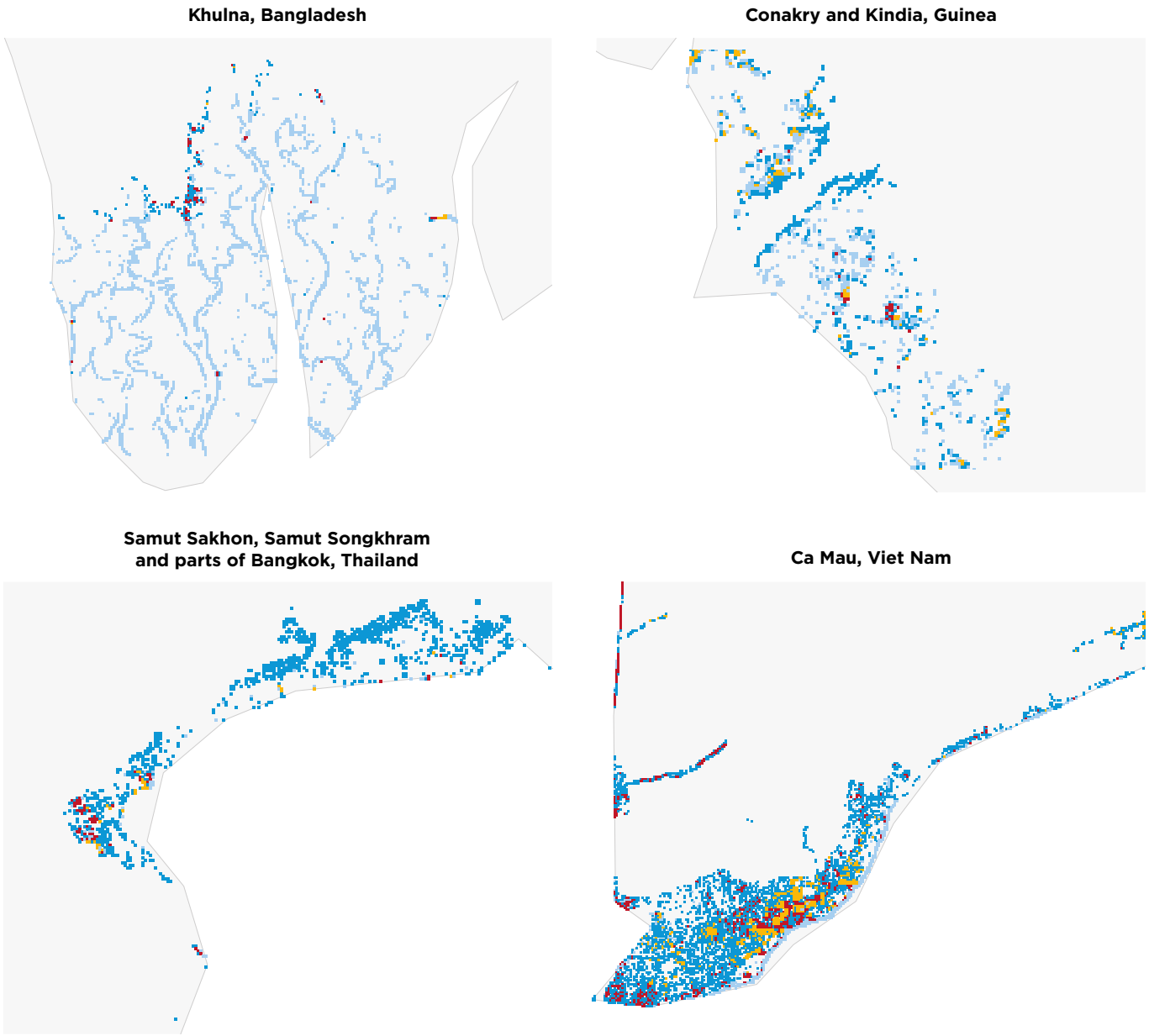


Note: The figure shows the percentage of inhabited grid cells, out of all inhabited grid cells in each country, where three conditions occur simultaneously: mangrove loss between 2000 and 2016 is in the top third nationally; nighttime light intensity is in the bottom third; and mobile connectivity is low or not observed. Because grid cells are approximately equal in area (roughly 0.5km per side), this percentage closely reflects the share of inhabited land meeting all three conditions. Countries not shown in colour either have no recorded mangrove loss in the dataset or have fewer than 30 inhabited mangrove-loss cells, which means that estimates are below the reliability threshold. The screening is limited to the 39 country/territory entries available in the ORNL DAAC/CMS Global Mangrove Loss dataset. After country-boundary screening, Lao PDR was excluded as not applicable, which left 38 entries in the final map. ORNL DAAC documentation notes that files for 78 additional countries were not included owing to missing data, so the analysis should not be interpreted as a complete global assessment of all mangrove-bearing countries. Sources: UN Women's calculations based on mangrove loss extent data from NASA/ORNL DAAC's Global Mangrove Loss dataset (available at : Global Mangrove Loss Extent, Land Cover Change, and Loss Drivers, 2000-2016), nighttime lights data from the 2016 VIIRS Nighttime Day/Night Band Annual Composite (available at: VIIRS Nighttime Light), settlement data from the Global Human Settlement Layer Built-Up Surface (available at: Global Human Settlement - BUILT-S_GLOBE_R2023A - European Commission), and mobile connectivity data from Ookla Speedtest, Q2 2026 (available at: Speedtest by Ookla - The Global Broadband Speed Test).

The designations employed and the presentation of material on this map do not imply the expression of any opinion whatsoever on the part of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Final boundary between the Republic of Sudan and the Republic of South Sudan has not yet been determined. Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. A dispute exists between the Governments of Argentina and the United Kingdom of Great Britain and Northern Ireland concerning sovereignty over the Falkland Islands (Malvinas).

information is even lower than in the case of rapid onset hazards such as flash floods. Beyond sharing early warning messaging that may alert people to impending hazards, providing access to information on sustainable mangrove management also remains critical. This information, however, is not usually as widely broadcasted as rapid onset hazard warnings. For instance, in countries with available data, only 28 per cent of people who noticed mangrove loss near the area where they live, received information on sustainable mangrove management or rapid onset hazard warnings,[29] which limits people's capacity to manage their environment, and ultimately constrains their resilience.

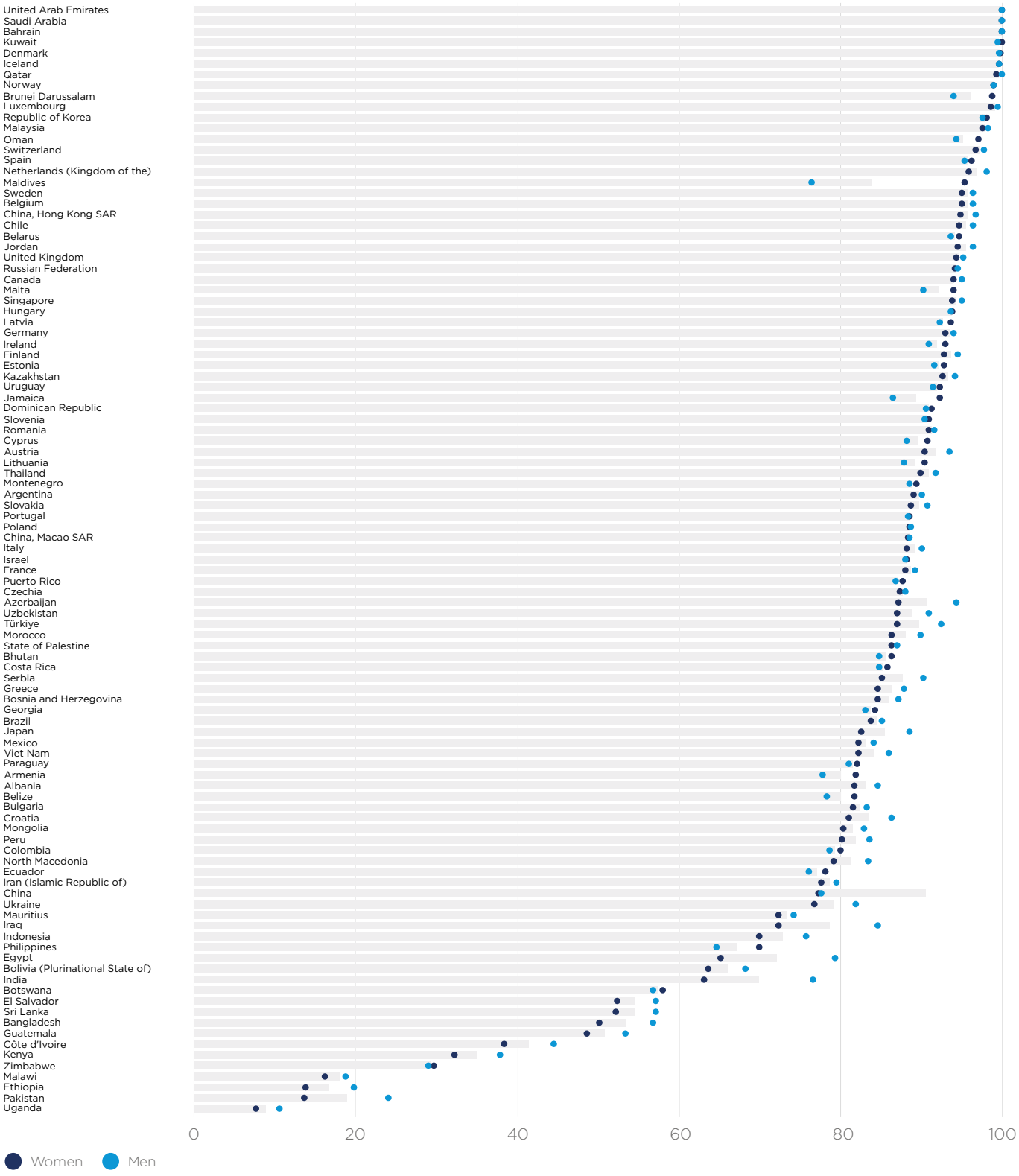
FIGURE 24. Mangrove loss hotspots (whether the area is populated, non-electrified and at high flood risk)



Note: These figures show where mangrove loss priority hotspots overlap with modeled coastal flood exposure. A priority hotspot is an inhabited grid cell with recorded mangrove loss between 2000 and 2016, and where three conditions occur simultaneously: mangrove loss in the top third, nighttime light intensity is in the bottom third, and mobile connectivity is low or not observed. Each is measured relative to that country's own inhabited mangrove loss cells. A cell is additionally classified as flood-exposed if modeled coastal flood depth is at least 0.1 metres under the WRI Aqueduct historical-baseline, 10-year-return-period scenario. Flood-exposed priority hotspots are defined as cells that meet all three hotspots. Sources: UN Women's calculations based on mangrove loss extent data from NASA/ORNL DAAC's Global Mangrove Loss dataset (available at : Global Mangrove Loss Extent, Land Cover Change, and Loss Drivers, 2000-2016), nighttime lights data from the 2016 VIIRS Nighttime Day/Night Band Annual Composite (available at: VIIRS Nighttime Light), settlement data from the Global Human Settlement Layer Built-Up Surface (available at: Global Human Settlement - BUILT-S_GLOBE_R2023A - European Commission), and mobile connectivity data from Ookla Speedtest, Q2 2026 (available at: Speedtest by Ookla - The Global Broadband Speed Test).

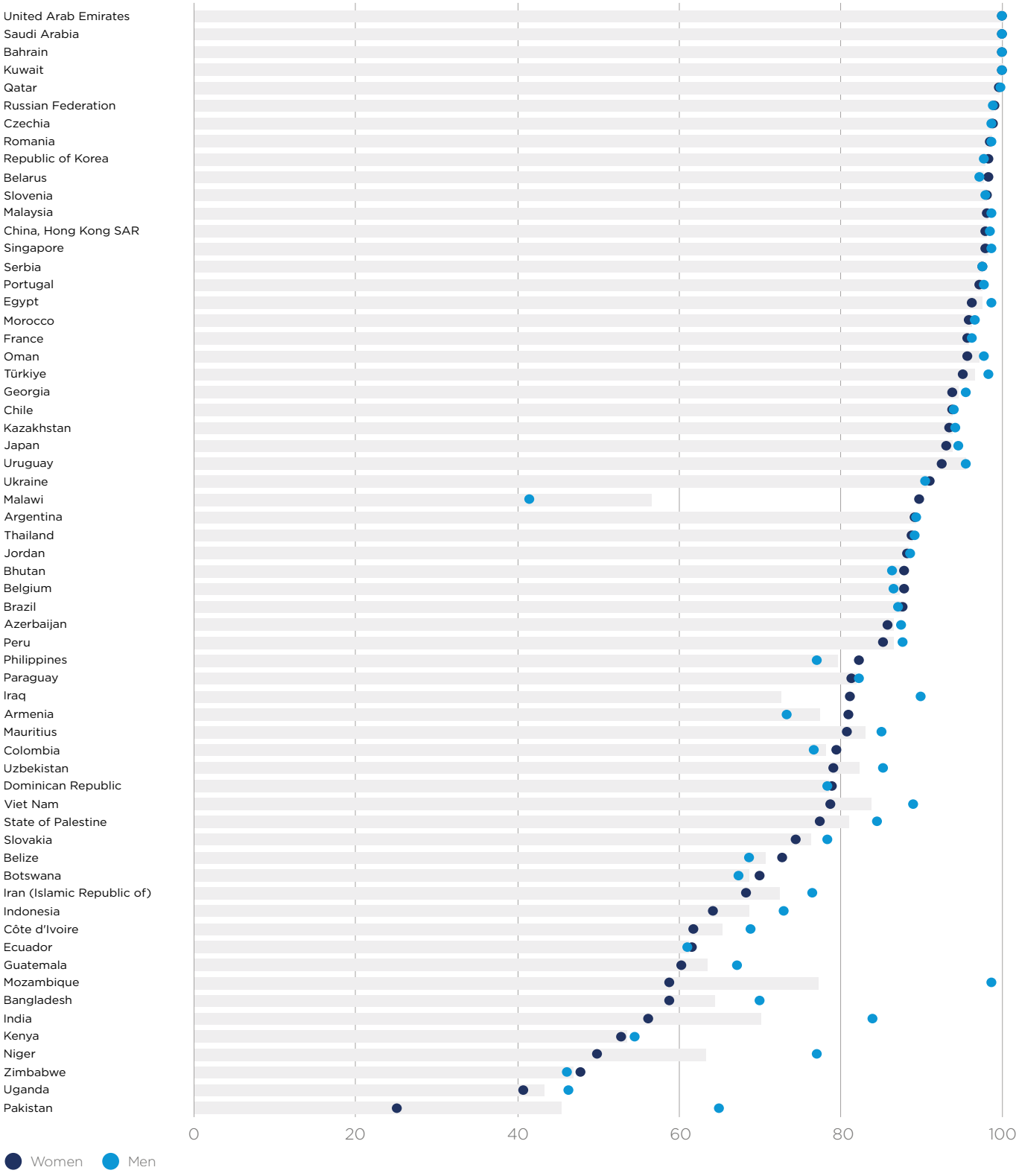
The designations employed and the presentation of material on this map do not imply the expression of any opinion whatsoever on the part of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

FIGURE 25A. Proportion of people using the Internet by sex, latest available year between 2020 and 2025 (percentage)



Source: United Nations Global SDG indicators Data Platform. Retrieved on 23 August 2026 from: UNSDG.

FIGURE 25B. Proportion of people owning a mobile phone by sex, latest available year between 2020 and 2025 (percentage)



Source: United Nations Global SDG indicators Data Platform. Retrieved on 23 August 2026 from: UNSDG.

Women Remain Underrepresented in Marine Conservation

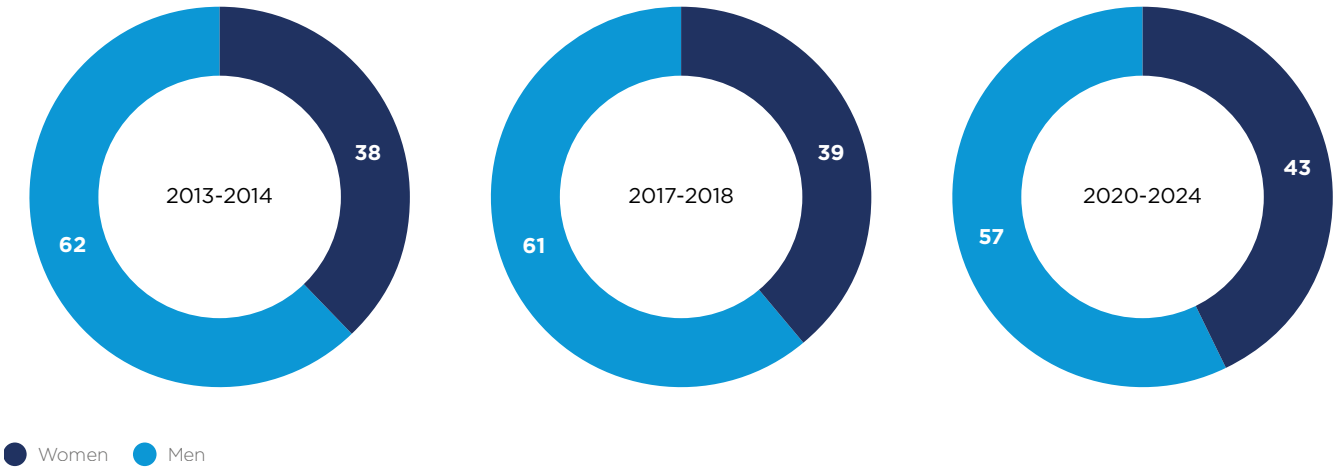
To protect marine biodiversity and safeguard ecosystem services provided by the ocean, marine conservation must be approached in a holistic manner, whereby: linkages between the triple planetary crisis are recognized; connections between the environment, economy, and social wellbeing are accounted for; and the needs and priorities of different population groups are met. To ensure decisions are inclusive, it is important that both women and men contribute at all levels to ocean science and governing natural resources, including at grassroots, national and international levels. Currently, women remain substantially underrepresented in all these spaces.

As of 2026, women made up only 43 per cent of all ocean researchers in countries with available data (**FIGURE 26**); up from 39 per cent in 2017. Women's participation in ocean science is essential to a holistic and better understanding of ocean-related issues and necessary to drive innovation, as women may be able to offer different perspectives. However, women continue to face persistent barriers that limit their participation in ocean science, including: lack of opportunities to climb the employment ladder in science-related environments; limitations associated with marine fieldwork environments, which may require women to be away from home for extended periods of time, which can be a challenge for new mothers; lack of private facilities for female hygiene; and a work culture that may expose women to harassment and/or abuse while on assignment at sea.

Funding may be another barrier that limits women's opportunities to participate in ocean-related events, which can further challenge their access to managerial roles in the field of ocean science. Between 2019 and 2025, gender parity was only reached in events focusing on the Polar regions and Oceania (**FIGURE 27**), whereas other regions consistently saw more men speakers. In addition, while general events on oceans and climate had equal numbers of women and men participants, specialized ocean events consistently had more men, regardless of topic (**FIGURE 28**).

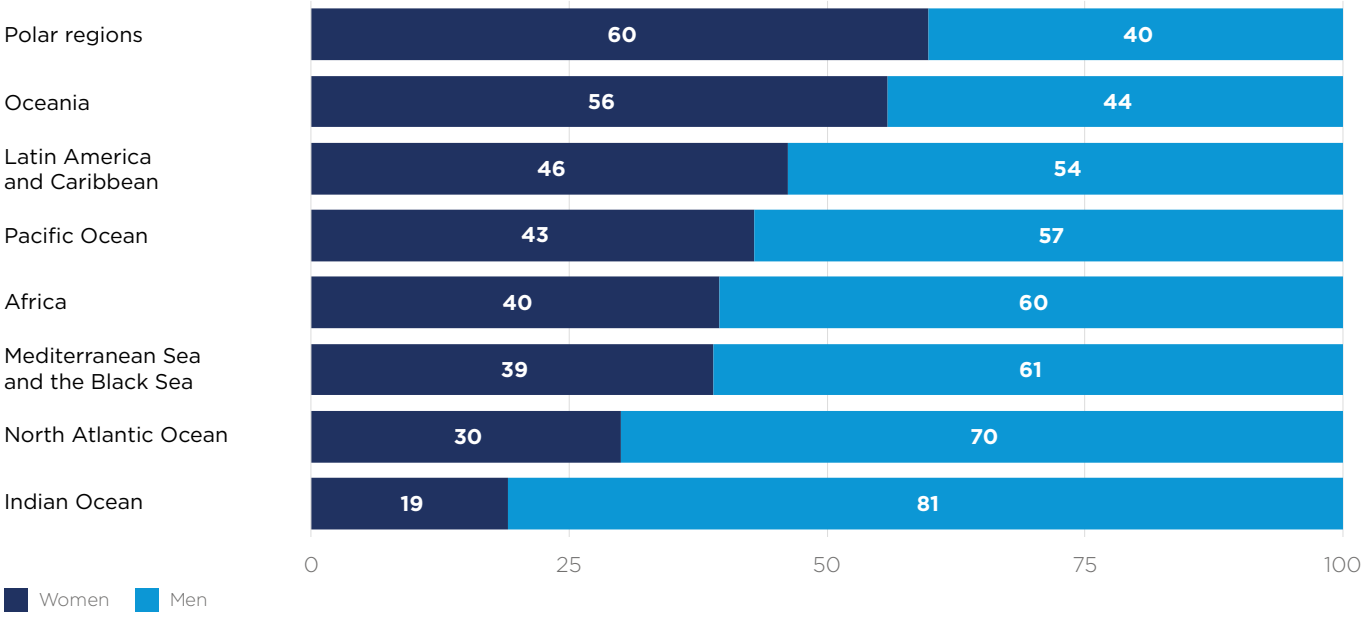
The gender gaps are even larger when it comes to representation in international organizations managing maritime issues, where the majority of senior management jobs (78 per cent) are held by men (**TABLE 1**). Women's leadership in these organizations is important to help dismantle some of the barriers that keep women out of ocean science, and to support global efforts towards more inclusive ocean management.

FIGURE 26. Proportion of ocean researchers by sex (percentage), 2026



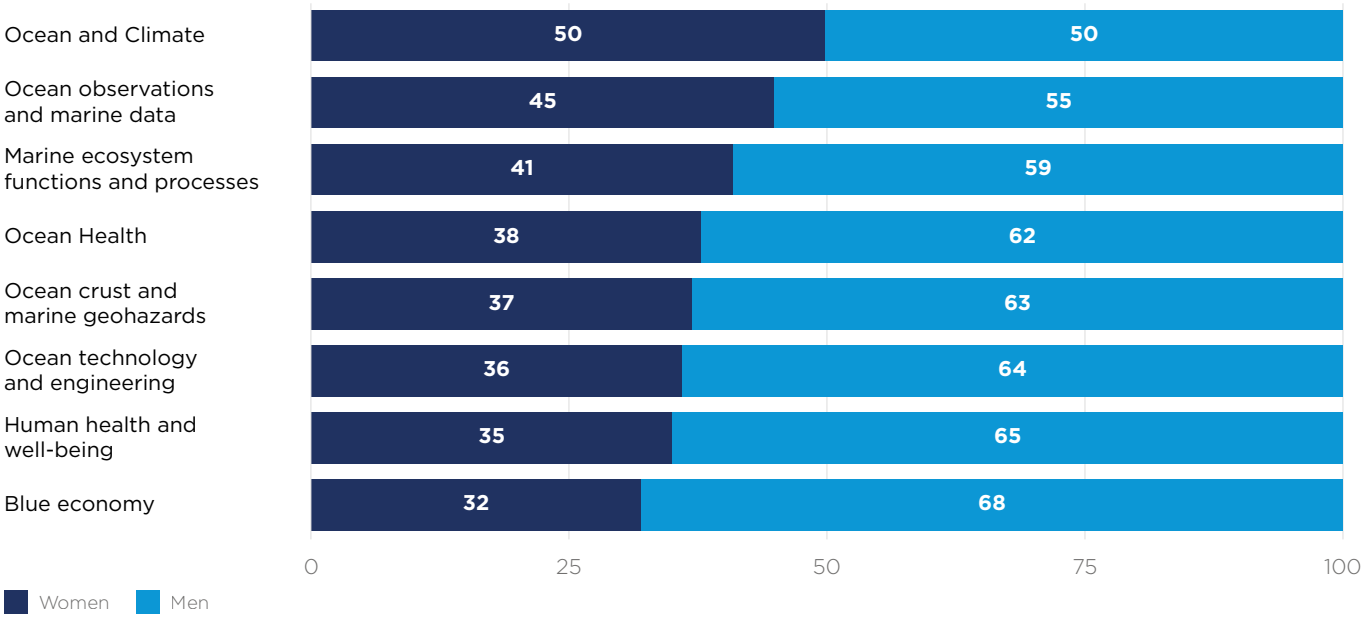
Note: The number of countries included varies by period: 24 countries in 2013–2014, 35 countries in 2017–2018 and 16 countries in 2020–2024. Source: Global Ocean Science Report, IOC UNESCO 2026.

FIGURE 27. Proportion of keynote and invited speakers at international scientific conferences and symposia by sex and region (percentage), 2019-2025



Source: Global Ocean Science Report, IOC UNESCO 2026. Available at: Global Ocean Science Report: world's most complete picture of ocean science released | Intergovernmental Oceanographic Commission.

FIGURE 28. Proportion of keynote and invited speakers at international scientific conferences and symposia by sex and Ocean Science Major Pillars (percentage), 2019-2025



Source: Global Ocean Science Report, IOC UNESCO 2026. Available at: Global Ocean Science Report: world's most complete picture of ocean science released | Intergovernmental Oceanographic Commission.

TABLE 1. Number of women and men in top leadership and senior management positions in international organizations managing maritime issues (total number), 2026

	Head		Senior Management	
Organization	**Women**	**Men**	**Women**	**Men**
International Maritime Organization (IMO)	0	1	2	4
International Association of Classification Societies (IACS)	0	1	8	29
European Maritime Safety Agency (EMSA)	1	0	2	2
International Seabed Authority (ISA)	1	0	1	4
Commission on the Limits of the Continental Shelf (CLCS)	0	1	1	18
International Tribunal for the Law of the Sea (ITLOS)	0	1	6	14

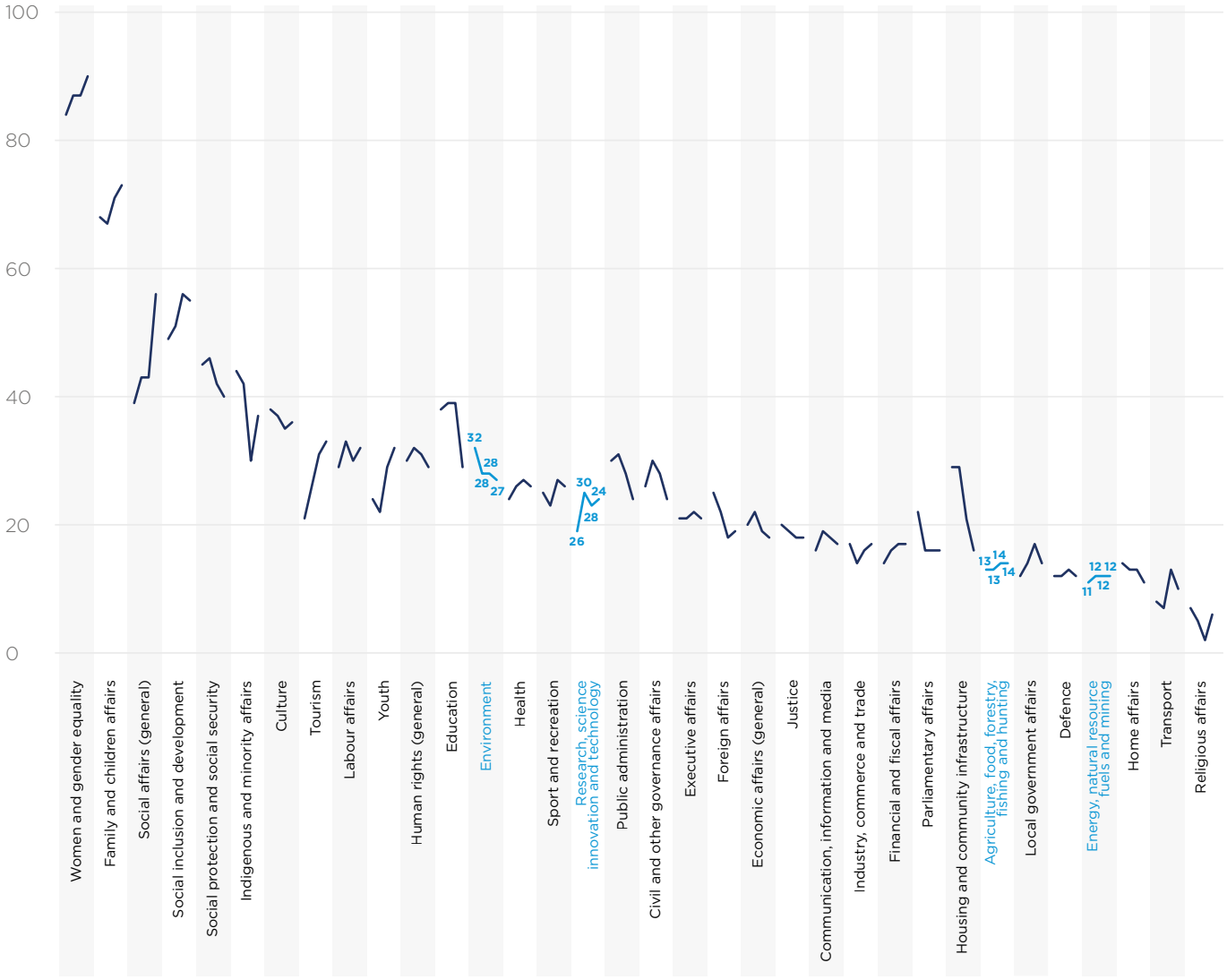
Note: Data reflect publicly available organizational information verified as of 11 August 2026. Role structures differ across organizations. For IMO, the Secretary-General is classified as Head and other members of the Senior Management Committee as senior management. For IACS, Head refers to the Secretary-General. Senior management includes members of the Council, General Policy Group, Secretariat and seven IACS Panels. Data were provided directly by the IACS Secretariat in August 2026. For EMSA, the Executive Director is Head and the four Heads of Department constitute senior management. For ISA, the Secretary-General is Head; senior management includes the Deputy Secretary-General/Chef de Cabinet and directors/heads of the four central Secretariat offices. For CLCS, the Chair is Head and all other current Commission members are included in the senior category. For ITLOS, the President is Head and the remaining elected judges are included in the senior category.

At the national level, underrepresentation of women is an issue in top ministerial jobs dealing with fisheries, the environment and science in general. Globally, an estimated 14 per cent of ministers for fisheries, agriculture and related issues are women, as are 27 per cent of ministerial positions for the environment, and 24 per cent of those on research, science, innovation and technology (**FIGURE 29**). Over the past few years, women's representation in some of these ministries has, in addition, declined. In particular, there are notable declines in the proportion of women in ministries related to the environment (a drop from 32 per cent in 2023 to 27 per cent in 2026) and research, science, innovation and technology (a drop from 26 per cent in 2023 to 24 per cent in 2026). Women's limited presence in such government institutions is known to result in overlooked value chains, such as a disproportionate focus of fishery policies for industrial fishing and a greater disregard for small-scale fisheries and pre- and post-harvest activities.[30] Women's limited presence also limits their contributions to natural resource management, which may result in unequal distribution of benefits from ecosystem services.

Discriminatory social norms and other barriers also keep women away from playing essential roles in the enforcement of environmental protections and monitoring of biodiversity on the ground. For instance, across countries, the policing of oceans – whether fisheries regulation, anti-trafficking or anti-piracy – is a male-dominated profession. In no country with available data do women make up more than 40 per cent of personnel in the coast guard or maritime police; the largest share are registered in Uruguay's and New Zealand's navies (**FIGURE 30**). In the Pacific, less than 10 per cent of the 16,000 people employed in the maritime sector are women, with most of those women holding administrative positions.[31] Women's limited participation is a missed opportunity to promote conservation in spaces that could benefit the livelihoods of artisanal fishers, which is where women largely operate.

Regardless of occupation or seniority, all women and men who harvest marine life can also play essential roles in biodiversity conservation and marine resource management throughout their daily activities. For instance, looking at official fish stock information

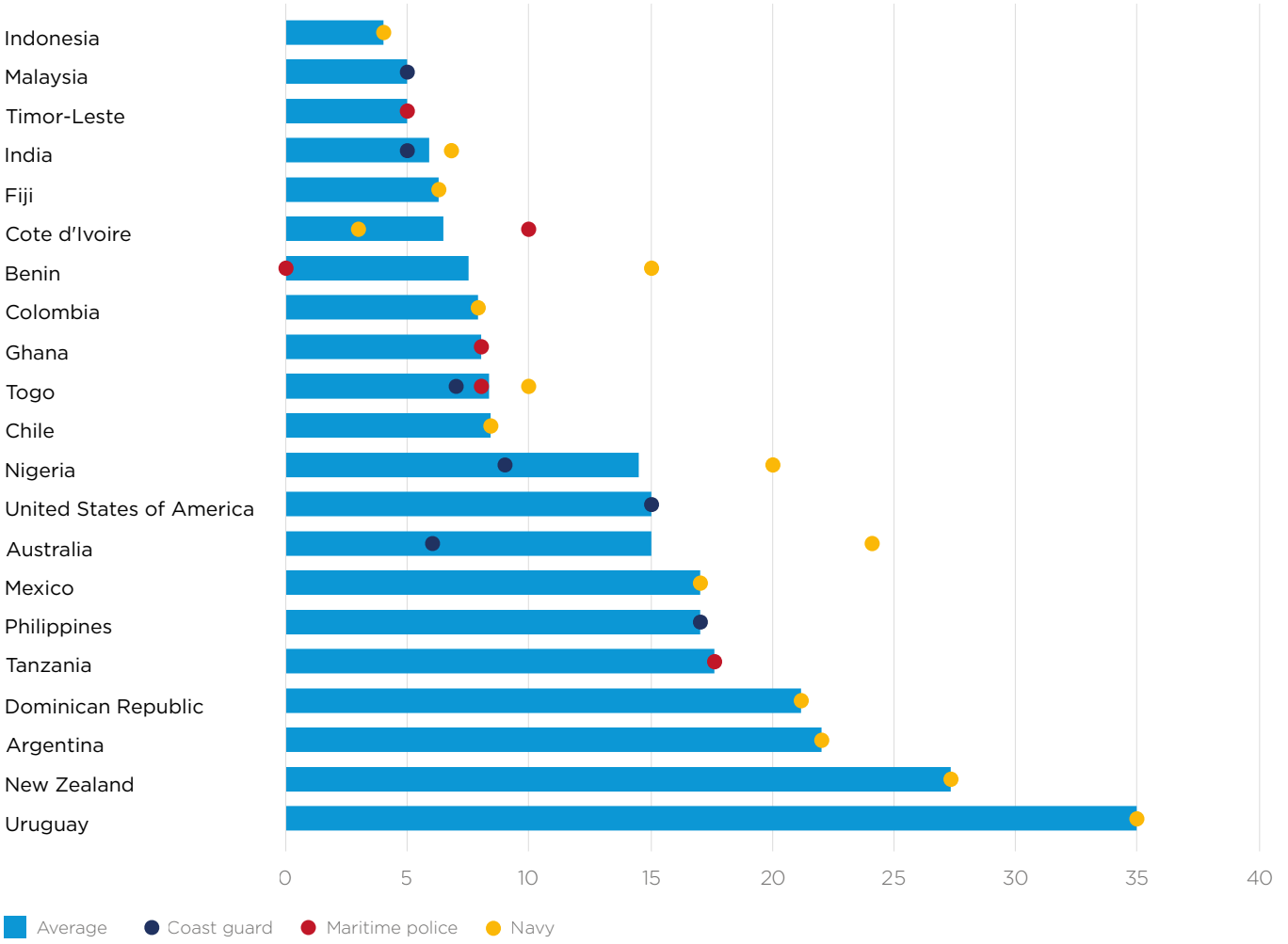
FIGURE 29. Share of women Cabinet Ministers by type of portfolio (percentage), 2023-2026



Note: The columns are not mutually exclusive. In other words, one minister may hold several portfolios and a portfolio may be held by multiple ministers within a country. Country coverage also varies by year (190 countries in 2023 and 2024, 189 countries in 2025 and 190 countries in 2026.
Source: Inter-Parliamentary Union and UN Women classifications of ministerial portfolios.

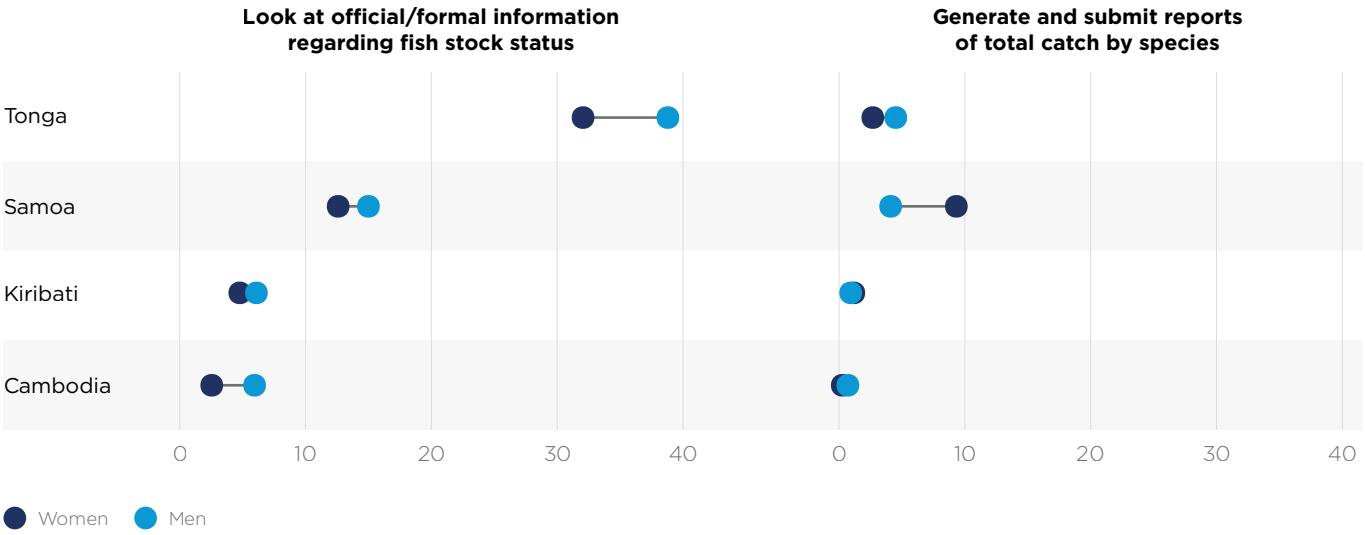
prior to selecting target species and fishing locations is an essential first step towards managing fisheries sustainably. In addition, generating reports about catch size and species, and submitting them to relevant authorities can help monitor the health of fish stocks and contribute to marine resource management. Data on individual behaviours is only available for a handful of countries, yet where data exists, it shows that these contributions remain relatively rare. In most countries, less than 10 per cent of people practicing harvesting monitor the status of fish stocks and even fewer submit catch reports. Overall, men are more likely than women to monitor stocks, perhaps due to their better access to technology (**FIGURES 31**). The low levels of reporting highlights enforcement and monitoring gaps, with consequences for biodiversity loss. Globally, roughly 16 per cent of catch volumes are estimated to be unreported; the highest rates of unreported landed marine life are believed to be in Northern Africa and Western Asia (**FIGURE 32**).[32] Local populations,

FIGURE 30. Proportion of women serving in maritime law enforcement agencies in charge of environmental protection of marine areas (percentage), latest available year



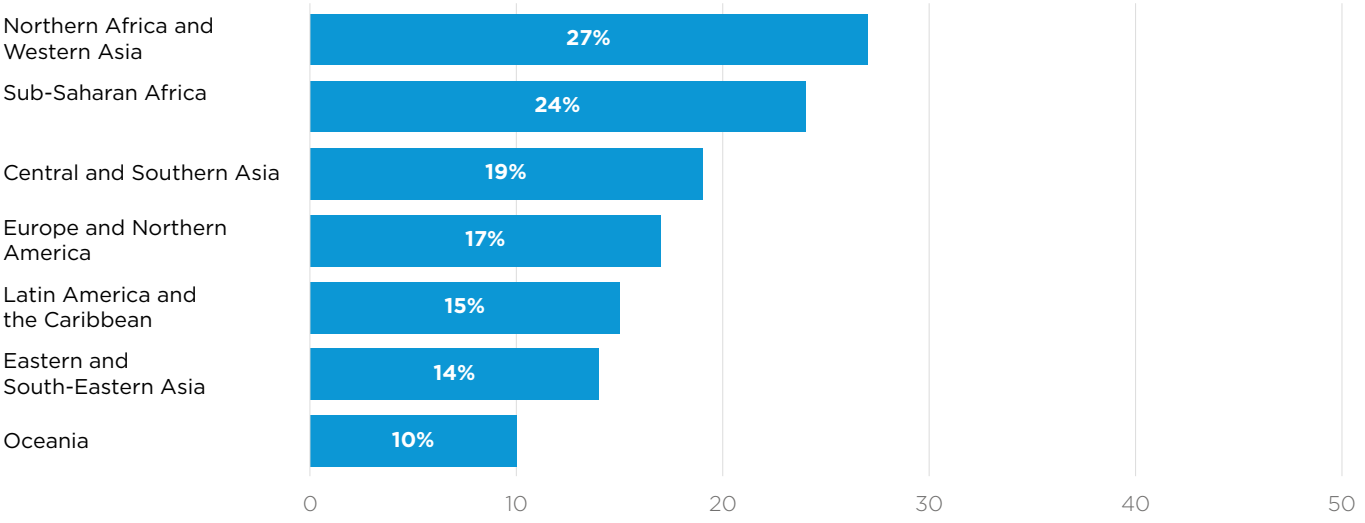
Note: The estimates for different countries may refer to different institutions or sets of institutions and different years. Argentina (navy), 2022; Australia (Border Force Marine Unit and navy), 2024; Benin (maritime police and navy), 2021; Colombia (navy), 2018; Chile (navy), 2016; Côte d'Ivoire (maritime police and navy), 2021; Dominican Republic (navy), 2020; Fiji (navy), 2019; Ghana (maritime police), 2021; India (coast guard and navy), 2024; Indonesia (navy), 2022; Malaysia (coast guard), 2022; New Zealand (navy), 2025; Nigeria (NIMASA Maritime Guard Command and navy), 2021-2022; Philippines (coast guard), 2022; Tanzania (maritime police), 2020; Timor-Leste (maritime police), 2022; Togo (coast guard, maritime police and navy), 2021; United States of America (coast guard), 2022; Uruguay (navy), 2024. Sources: United Nations Office on Drugs and Crime (2023). Gender Dimensions and Dynamics of Maritime Criminality, Response and Capacity in West Africa. UNODC: Vienna, Austria; UNODC Empowers Female Officers in Maritime Law Enforcement Across Eastern Africa. Retrieved on 3 September 2026 from: UNODC Empowers Female Officers in Maritime Law Enforcement Across Eastern Africa; Malaysia's Women of Steel Thrive in a Man's World. Bernama, 8 March 2022 from: BERNAMA - Malaysia's Women Of Steel Thrive In A Man's World; Data: Number of Recognized Startups with At Least 1 Women Director crossed 50% in 2024 While Women in BoD Roles still at 29%. Factly, 2 May 2025. Retrieved on 3 September 2026 from: Data: Number of Recognized Startups with At Least 1 Women Director crossed 50% in 2024 While Women in BoD Roles still at 29% - FACTLY; United States Coast Guard. Retrieved on 3 September 2026 from: The Long Blue Line: A brief history of women's service in the Coast Guard > United States Coast Guard > THE LONG BLUE LINE; Presidential Staff Office Highlights the Lack of Female TNI Soldiers. Kompas, 20 August 2023. Retrieved on 3 September 2026 from: Presidential Staff Office Highlights the Lack of Female TNI Soldiers; RFNS Volasiga To Arrive In October and RFNS Savenaca In April 2020, Women to Make Up 16% of Fiji Navy Personnel. Fiji Sun, 6 July 2019. Retrieved on 3 September 2026 from: RFNS Volasiga To Arrive In October And RFNS Savenaca In...; Indonesian National Army Navy. Retrieved on 3 September 2026 from: Indonesian National Army Navy - Wikipedia, the free encyclopedia; Instituto National de Estadistica y Georgrafia (2019). Mujeres y hombres en Mexico 2019. INEGI: Mexico. Retrieved on 3 September 2026 from: Mujeres y hombres en México 2019; The gender revolution deepens in the Armed Forces. Pagina12, 5 March 2022. Retrieved on 3 September 2026 from: The Gender Revolution Deepens in the Armed Forces – Page|12; Women, Peace and Security Workshop. Ministry of National Defense, 17 September 2024. Retrieved on 3 September 2026 from: Women, Peace and Security Workshop | Ministry of National Defense; Maritime Strategy Perspectives, Australian Border Police, 11 April 2024. Retrieved on 3 September 2026 from: Maritime Strategy Perspectives; Australian Government Defence Annual Report 2023-24. Retrieved on 3 September 2026 from: 2023-24 Defence Annual Report; Te Taua Moana Navy. Retrieved on 3 September 2026 from: Our people - New Zealand Defence Force; Women in International Security. Colombia – Summary Report. Retrieved on 3 September 2026 from: Colombia Report FINAL dec2; Women in International Security. Chile – Summary Report. Retrieved on 3 September 2026 from: Chile Report FINAL dec 2; Women in International Security. Dominica Republic – Summary Report. Retrieved on 3 September 2026 from: Dominican Republic Report FINAL Dec 2, 2020; Philippine Coast Guard (2022); Timor-Leste National Police, Gender Strategy 2024-2028 (2024).

FIGURE 31. Proportion of the fishing/marine harvesting population who support fish stock monitoring by looking at fish stock status and reporting on catch by sex (percentage), latest available year



Source: UN Women & Tonga Statistics Department (2023). Gender and Environment Survey 2022. Tonga Statistics Department: Nuku'alofa, Kingdom of Tonga; UN Women & Samoa Bureau of Statistics (2024). Gender and Environment Survey 2023. Samoa Bureau of Statistics: Apia, Samoa; UN Women & National Institute of Statistics (2025). Gender and Environment Survey 2024. UN Women: Phnom Penh, Cambodia; UN Women & Kiribati National Statistics Office (in press). Gender and Environment Survey 2025. Government of Kiribati: Tarawa, Kiribati.

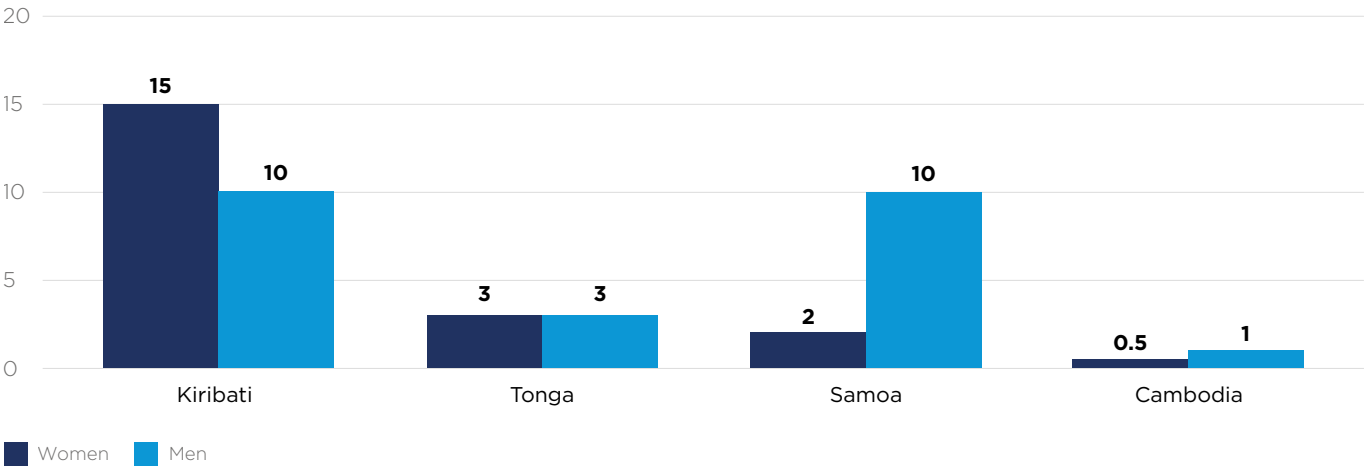
FIGURE 32. Proportion of unreported landings by region (percentage), latest available year



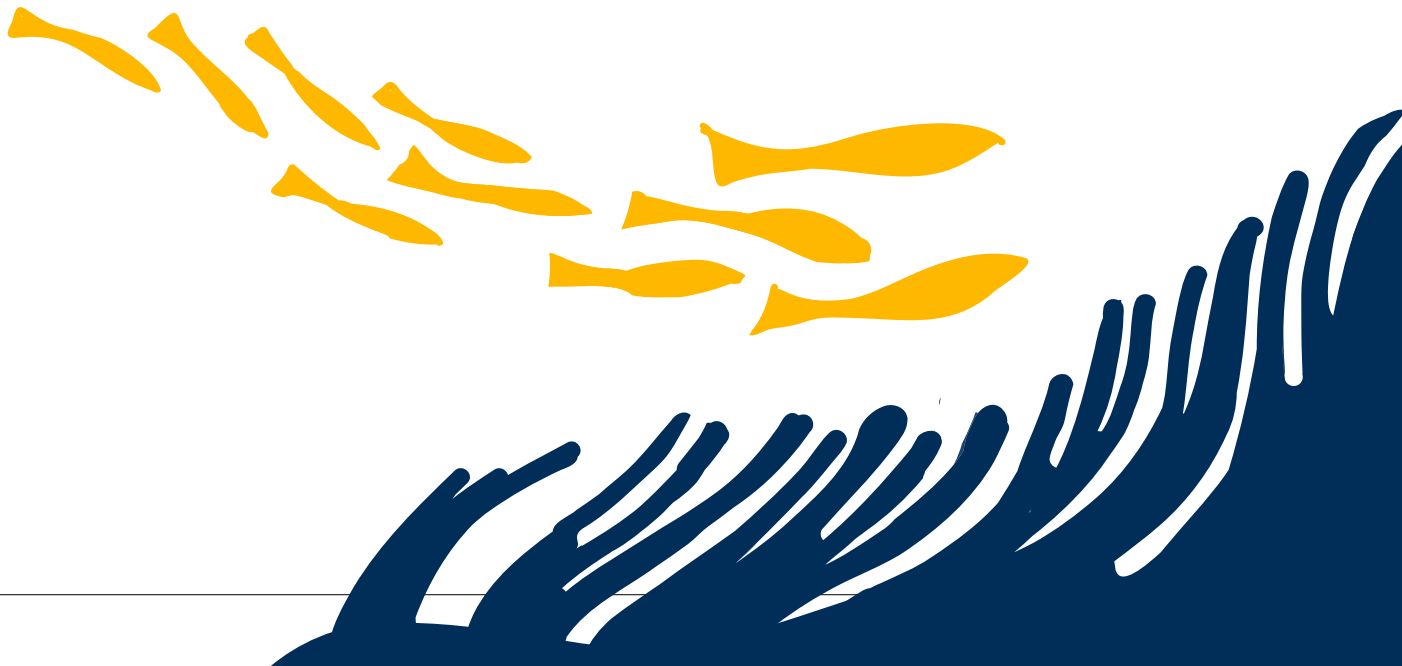
Note: The estimates cover all fishing entities and fishing sectors using the latest available data. For this analysis, only landings are included. The unreported rate is calculated as unreported tonnes divided by total tonnes of catch (reported and unreported combined). Regional classification follows the UN SDG standard. Source: Sea Around Us. Retrieved on 3 September 2026 from: Home | Sea Around Us.

including women and indigenous peoples could play essential roles in monitoring such reporting and the overall adherence to local regulations for protecting marine ecosystems (**FIGURE 33**). This could also be achieved by promoting the participation of women and indigenous peoples in fishery management groups. Currently, women's participation remains below 20 per cent in all countries with available data.

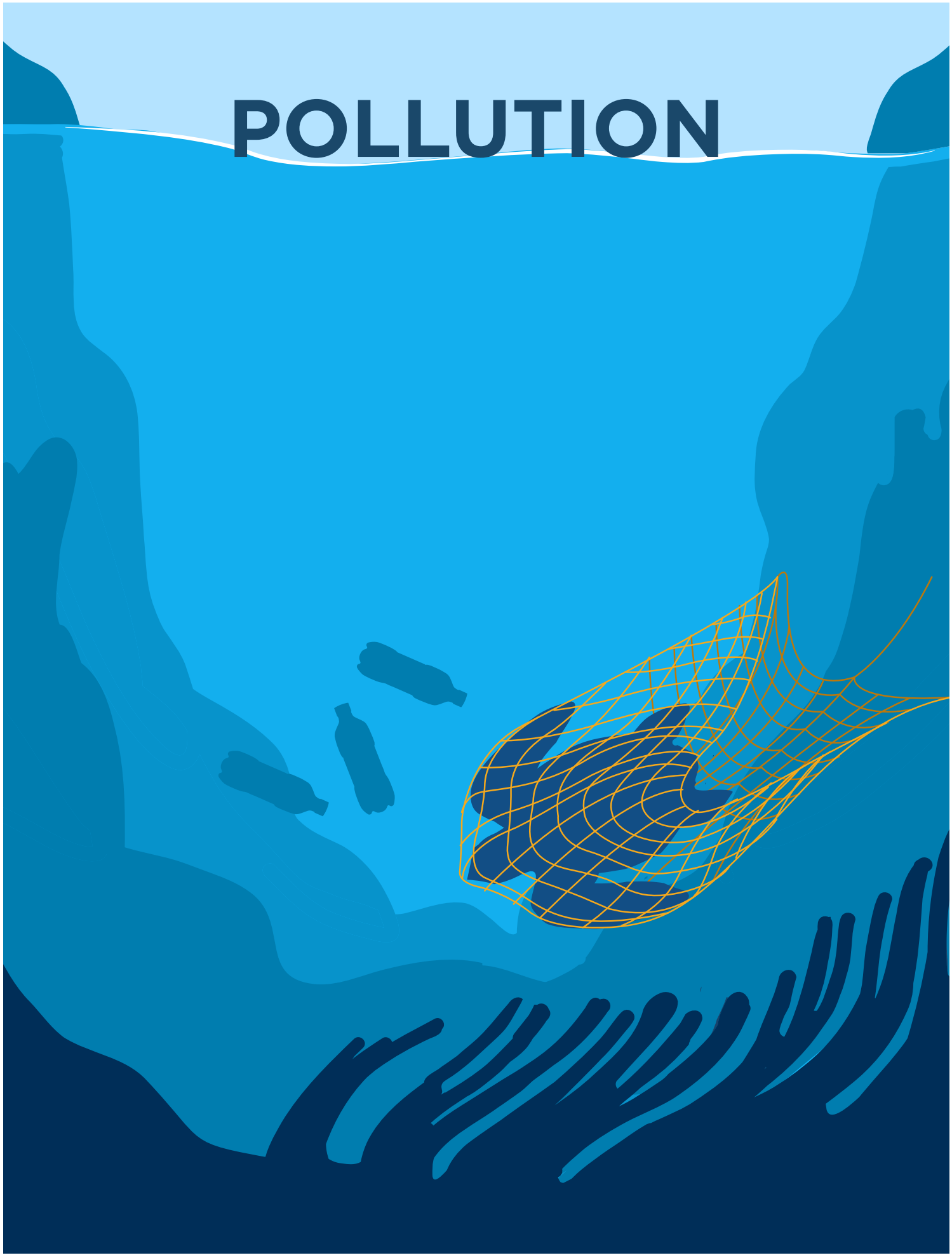
FIGURE 33. Proportion of the fishing/marine harvesting population engaged in fishery management groups by sex (percentage), latest available year



Source: UN Women & Tonga Statistics Department (2023). Gender and Environment Survey 2022. Tonga Statistics Department: Nuku'alofa, Kingdom of Tonga; UN Women & Samoa Bureau of Statistics (2024). Gender and Environment Survey 2023. Samoa Bureau of Statistics: Apia, Samoa; UN Women & National Institute of Statistics (2025). Gender and Environment Survey 2024. UN Women: Phnom Penh, Cambodia; UN Women & Kiribati National Statistics Office (in press). Gender and Environment Survey 2025. Government of Kiribati: Tarawa, Kiribati.



POLLUTION



The ocean absorbs more than a quarter of all anthropogenic emissions (roughly 40 billion tonnes of CO_2 annually) and roughly 60 per cent of naturally occurring CO_2 annually (330 billion tonnes).[33, 34] It also helps to break down organic waste that flows from land, and other forms of non-point source pollution, playing an essential water quality regulating role and protecting human health. Agricultural runoff and wastewater, however, introduce excess nutrients into the ocean, which produces toxic algal blooms and hypoxic zones where marine life suffocates. Industrial and chemical runoff also introduces persistent toxins into the ocean, which remain in marine life and climb up the food chain contributing to bioaccumulation.

By facilitating shipping, the ocean provides immense contributions to the global economy; in fact, marine transport moves between 80 and 90 per cent of all global trade by volume.[35] As a result, surface water absorbs most shipping-related emissions. Shipping and fishing emit nitrogen and sulphur oxides, which accelerate acidification and often discharges toxic bilge water,[36] antifouling paints,[37] and scrubber wastewater in the ocean.[38]

Fishing activities, including discarded fishing gear, compound the pollution pressures the ocean faces. Fishing gear makes up 50 to 100 per cent of plastic debris found in the ocean, depending upon location, which has catastrophic impacts on marine ecosystems.[39] This debris is often mistaken for food by marine life; thus, it can lead to starvation and contributes to destroying coral reefs, sea grass and other coastal ecosystems. Globally, there are 27 items of beach litter per every 100 square metres, although concentrations are much higher in Northern Africa (223 items per 100 square metres) and South-Eastern Asia (124 items per 100 square metres).[40] It is difficult to estimate how much litter is exactly floating on the ocean surface or lying on the seafloor, but available data shows some of the highest concentrations in the Northeast Pacific, where some areas register 1,000 pieces of floating microplastic per square metre.[41] Although barely visible to the human eye, these microplastics disrupt ecosystem processes by altering photosynthesis, changing natural nitrogen cycles, depleting oxygen in seawater, altering sediment processes and affecting the food web via reductions in species diversity and poisoning of bottom-dwelling ocean life.

The impacts of all forms of marine pollution on humans are also dramatic. On the one hand, runoff leads to changes in the availability and location of marine species, which impacts food security, especially for women living in coastal areas. On the other hand, plastic pollution contributes to the decline of coral reefs, which further affects seafood availability for women who fish on shore, and lengthens the time needed for triaging and seafood processing – work that is dominated by women. Beach litter also contributes to a diffusion of pathogens, with consequences for human health and care provision, which often falls on women's shoulders. It is important to note that there is emerging research and evidence linking pollution to other health impacts. For instance, consuming seafood that has ingested microplastics is thought to contaminate the placentas of pregnant women and trigger inflammation linked to pre-term births, among other health-related issues.[42]

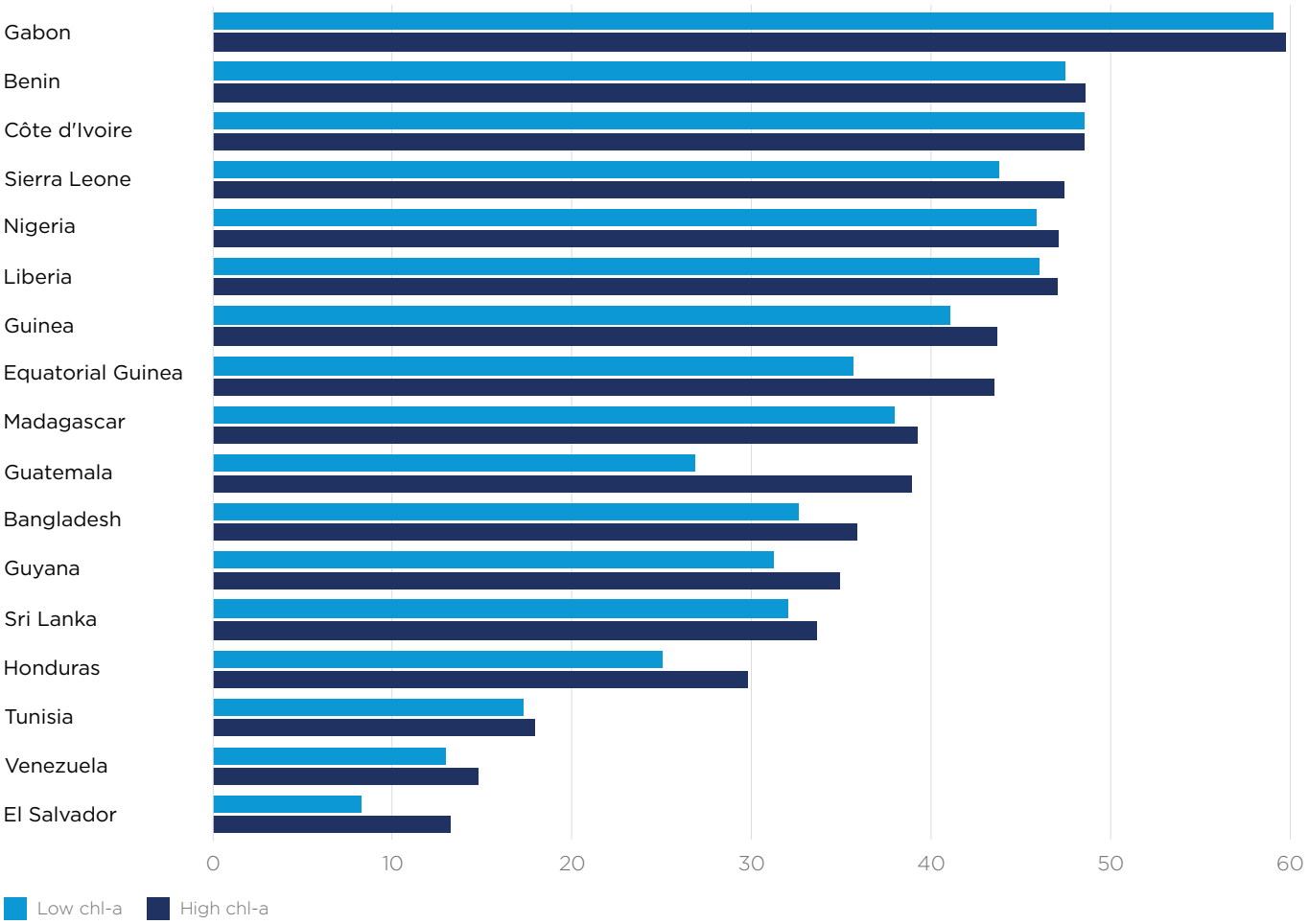
Runoff-Driven Eutrophication Linked to Women's Anaemia

Coastal communities often depend on the ocean for food security and livelihoods. The availability of nutrients in ocean water is essential to maintaining ocean health and productivity, as well as human health. A balanced nutrient availability relies upon effective vertical mixing, upwelling, and natural runoff processes. Vertical mixing – the process whereby wind and cool temperatures move heat, energy and nutrients between deep and surface layers of the ocean – is severely affected by pollution via changes in water density and temperature. Moreover, the benefits of upwelling – the process whereby winds push warm surface water away from the coast, forcing the cold, deep, nutrient-heavy water to the ocean surface – may be altered in the presence of runoff. High concentrations of chlorophyll (naturally occurring in upwelling zones, exacerbated when combined with pollution), lead to harmful algal blooms, lift sunken microplastics and promote acidification. The composition of natural runoff – whereby rivers and winds carry land-based minerals into the sea – is also altered by pollution and carries harmful substances into the ocean. All these pollution-driven changes are

altering the nutrient balance of ocean water and its productivity.

As large-scale farming operations and urbanization continue to grow globally, so does agricultural runoff and sewage. The changing climate, through heavier downpours, further exacerbates this problem. When this pollution accumulates in the ocean, the excess nitrogen and phosphorous, among other substances, worsen marine eutrophication.[43] As a result, algal blooms proliferate, marine life suffocates and the ocean food web is disrupted. This affects marine productivity and the food security and livelihoods of coastal communities, and disproportionally impacts women who are the most likely to give up their food in favour of feeding others during times of food scarcity. This is evidenced by the fact that across most countries with available data, the prevalence of women's anaemia is higher in areas disproportionately exposed to pollution-driven eutrophication (**FIGURE 34**). Anaemia – a condition of low red blood cell or haemoglobin levels – can be a strong indicator of inadequate dietary intake, especially in women.

FIGURE 34. Proportion of women aged 15-49 in coastal areas who have anaemia by level of chlorophyll-a concentrations (countries that see no upwelling) percentage, 2010-2019 means



Note: The figure compares mean anaemia prevalence rates between coastal pixels with high chl-a levels (above country median) and low chl-a levels (below country median), among non-Eastern Boundary Upwelling Systems (EBUS) countries. IHME Global Burden of Disease anaemia data are a modelled raster at 4km resolution covering each entire country. Each bar reflects the mean modelled anaemia prevalence rates among women living within 25km of the coast. Source: UN Women calculations based on IHME Global Burden of Disease modelled anaemia estimates and NASA MODIS AQUA Level-3 chlorophyll-a concentration data for 2010–2019.

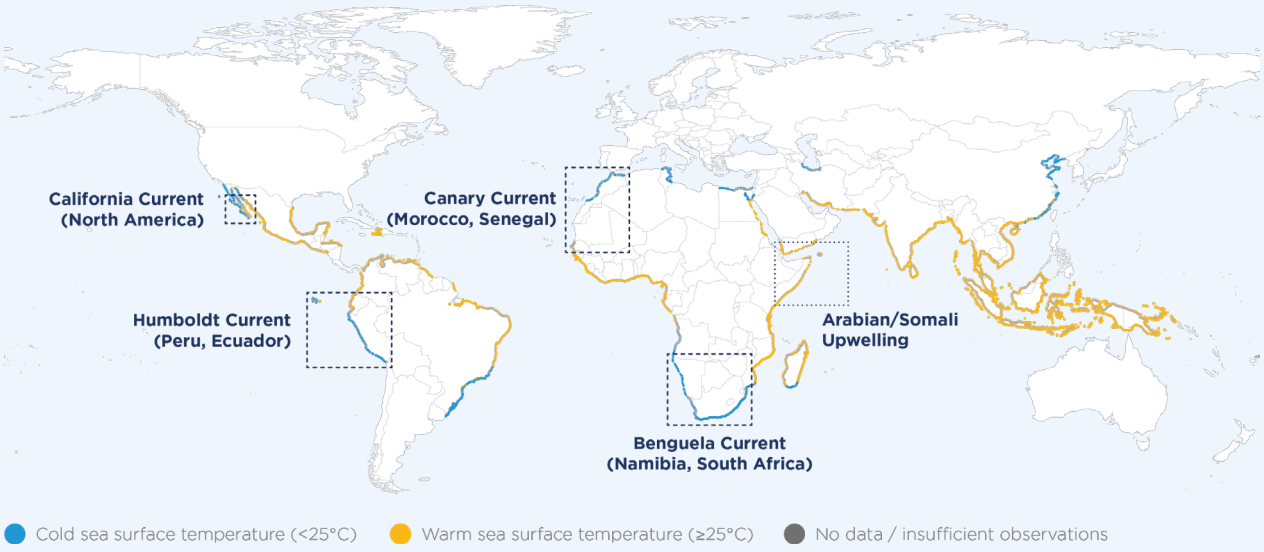
It is important to note that pollution does not act in isolation, as there are other factors that contribute to higher anaemia rates among women in coastal communities. Another key contributing factor is the presence of high industrial fishing activity and whether it curtails the availability of marine life enough to displace artisanal fishers. **BOX 2** illustrates how pollution interacts with biodiversity loss and can impact chlorophyll-a (chl-a) concentrations to the detriment of women's health outcomes.

BOX 2. UNDERSTANDING THE EFFECTS OF CHLOROPHYLL-A CONCENTRATIONS

Chlorophyll-a (chl-a) concentrations are high in parts of the ocean where upwelling is present and in those presenting eutrophication. While upwelling produces naturally productive, fish-rich waters and cools sea surface temperatures, eutrophication takes place in warmer, coastal waters affected by land-based nutrient pollution from runoff, which results in thermal stratification and reduced productivity. This can explain why anaemia prevalence rates are higher among women living in coastal areas where pollution-driven eutrophication is present.

Globally, there are four major upwelling systems that are active year-round.[44] These systems support disproportionately high fish biomass relative to their geographic extent (**FIGURE 35**). Abundant marine life in these areas negates any links between chl-a and anaemia, despite registering some of the world's highest chl-a concentrations. When chl-a concentrations are naturally high, they support a healthy marine environment and contribute to food security; however, when chl-a concentrations are driven by pollution, they have the opposite effect.

FIGURE 35. Upwelling zones and coastal areas by ocean surface temperature for select countries, 2010–2019

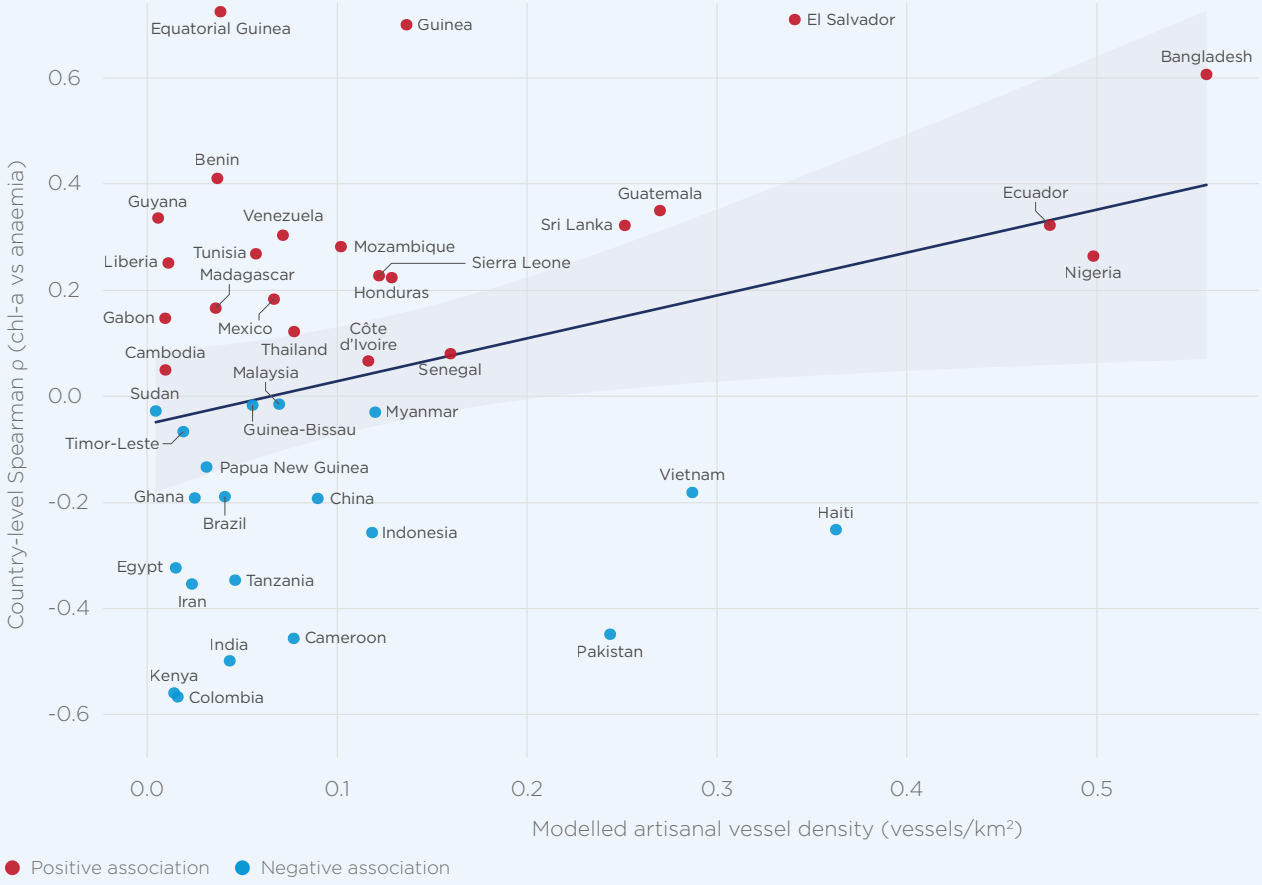


Note: UN Women calculated sea surface temperature based on the ten-year mean derived from NASA MODIS AQUA satellite observations (2010–2019) across 54 low- and middle-income coastal countries with anaemia estimates available from IHME Global Burden of Disease study. Source: Kämpf, J., & Chapman, P. (2016). *Upwelling Systems of the World: A Scientific Journey to the Most Productive Marine Ecosystems.* Springer International Publishing.

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The positive association between anaemia and chl-a concentrations is depicted in **FIGURE 36**. The correlation is particularly strong in non-EBUS countries where coastal communities depend substantially on artisanal fishing. For instance, in Bangladesh, where dependence on small-scale fisheries is some of the world's highest, the association between chl-a and anaemia is strong. In Thailand, which relies more heavily on industrial fisheries (which have, to a degree, displaced artisanal vessels), the correlation remains positive, but it is a lot weaker. In countries with an even lower presence of artisanal fishers, the association is sometimes positive and sometimes negative, which indicates that anaemia in these areas is more likely driven by other structural factors rather than coastal ecosystems.

FIGURE 36. Country-level Spearman correlation between chlorophyll-a and anaemia plotted against modelled artisanal vessel density (vessels/km²)



Note: Vessel density estimates are based on 2017 data (obtained from Clawson, G., J. Blanchard & C. Novaglio (2025). Global Fishing Effort Model Data and Shiny App (v10) and Institute for Marine and Antarctic Studies, University of Tasmania) and calculated from small artisanal boats only (length categories: < 6 metres and 6-12 metres). Red dots indicate countries where the correlation between chl-a and anaemia is positive, while blue dots indicate an inverse correlation. Source: UN Women calculations based on modelled artisanal vessel density from Clawson, G., J. Blanchard & C. Novaglio (2025). Global Fishing Effort Model Data and Shiny App (v10) and Institute for Marine and Antarctic Studies, University of Tasmania; Global Fishing Effort Model Data and Shiny App (v10). Retrieved on 3 September 2026 from: Global Fishing Effort Model Data and Shiny App | Zenodo; Institute for Marine and Antarctic Studies, University of Tasmania. Retrieved on 3 September 2026 from: Global Fishing Effort Mapper interactive tool.

BOX 3. COMPOUND EFFECTS OF POLLUTION AND INDUSTRIAL FISHING ACTIVITIES ON ANAEMIA PREVALENCE RATES AMONG WOMEN

Marine ecosystem services are determined by a complex set of intertwined factors, some of which are linked to Earth's natural processes, and some linked to exogenous pressures. The impacts of the triple planetary crisis on ocean health directly affect marine ecosystem services, and are underpinned by the many interactions between the three planetary crises of climate change, biodiversity loss and pollution. The three affect the health of marine environments and, as a result, impact human health. One example is how the intersection between pollution and biodiversity loss affects ocean productivity and, as a result, negatively impacts women's food intake: when non-point source pollution from agriculture and wastewater reaches the ocean, this contributes to marine eutrophication, which leads to reduced ocean productivity and women's increased risk of anaemia.

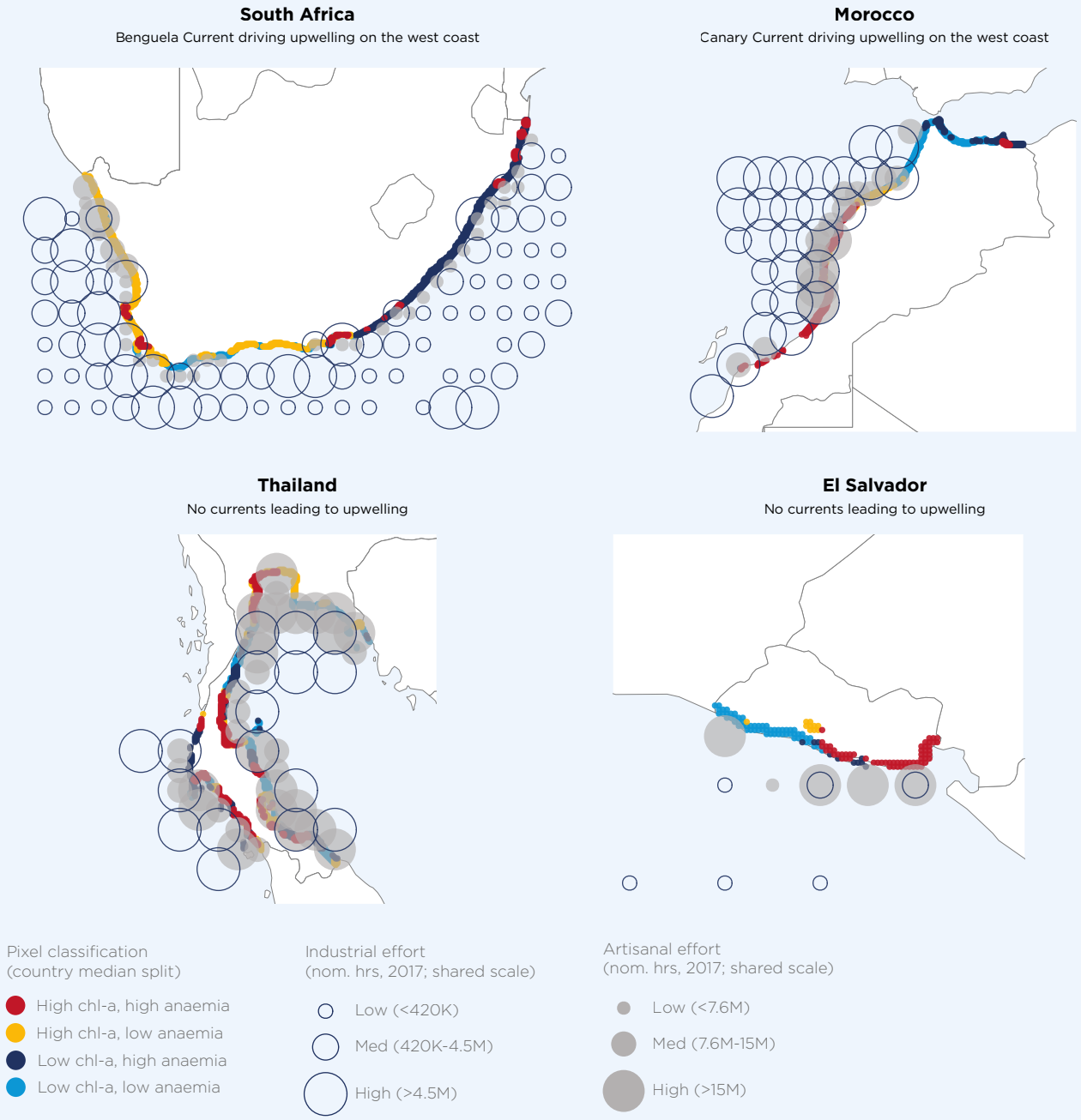
The effect, however, is muted in areas that are exceptionally rich in marine life, such as in upwelling zones, where natural biodiversity richness acts as a protective factor that enables marine life to thrive despite pollution threats. For instance, this is the case on the West Coast of South Africa, where industrial and artisanal vessels coexist thanks to rich marine productivity driven by the Benguela current (**FIGURE 37**).

Even areas that benefit from upwelling may suffer from fish depletion if, on top of pollution pressures, the presence of industrial fishing activities is left unchecked (i.e., fish catches exceed levels that guarantee stock sustainability), leaving local communities devoid of sufficient fish for consumption, contributing to women's anaemia. One example is Morocco, which benefits from the Canary current on its west coast, but also suffers from severe marine stock overfishing and depletion (**FIGURE 37**).

The effects are even more notorious in countries that do not benefit from ocean currents that cause upwelling, but where intense industrial fishing activity has displaced artisanal fishers and high levels of pollution lead to eutrophication, such as in Thailand, where fish stocks are heavily over-exploited or depleted by decades of intense commercial fishing, artisanal fishing activity has decreased as a result, and coastal waters, especially in the Gulf of Thailand, face significant pollution due to agricultural runoff, aquaculture, industrial waste and untreated urban sewage (**FIGURE 37**).

These examples illustrate how the combined effects of pollution and biodiversity loss have dramatic impacts; yet the negative effects of pollution alone should not be underestimated. Pollution affects the prevalence of women's anaemia, even in coastlines without industrial fleets and where artisanal fishing remains widespread. For instance, this is the case in El Salvador, which experiences severe marine pollution and intense eutrophication due to untreated sewage and agricultural runoff in places like Jiquilisco Bay, the Lempa River mouth and Union Bay. As a result, the prevalence of anaemia is high in these areas, despite the bulk of fishing activity remaining small-scale.

FIGURE 37. Spatial distribution of coastal chlorophyll-a, women's anaemia prevalence rates, and fishing effort intensity along the coasts of South Africa, Morocco, Thailand and El Salvador



Note: Anaemia and chl-a pixels are restricted to coastal communities within 25km of the coastline. Industrial and Artisanal effort circles are shown at their actual locations regardless of distance from shore, so they may extend further offshore than the coastal pixel layer. Source: UN Women calculations based on NASA MODIS AQUA Level-3 chl-a (4 km resolution, 2010–2019); IHME Global Burden of Disease anaemia prevalence rasters for women aged 15–49 (2010–2019); modelled artisanal and industrial fishing efforts; Clawson, G., J. Blanchard & C. Novaglio (2025). Global Fishing Effort Model Data and Shiny App (v10) and Institute for Marine and Antarctic Studies, University of Tasmania; Global Fishing Effort Model Data and Shiny App (v10). Retrieved on 3 September 2026 from: Global Fishing Effort Model Data and Shiny App | Zenodo; Institute for Marine and Antarctic Studies, University of Tasmania. Retrieved on 3 September 2026 from: Global Fishing Effort Mapper interactive tool.

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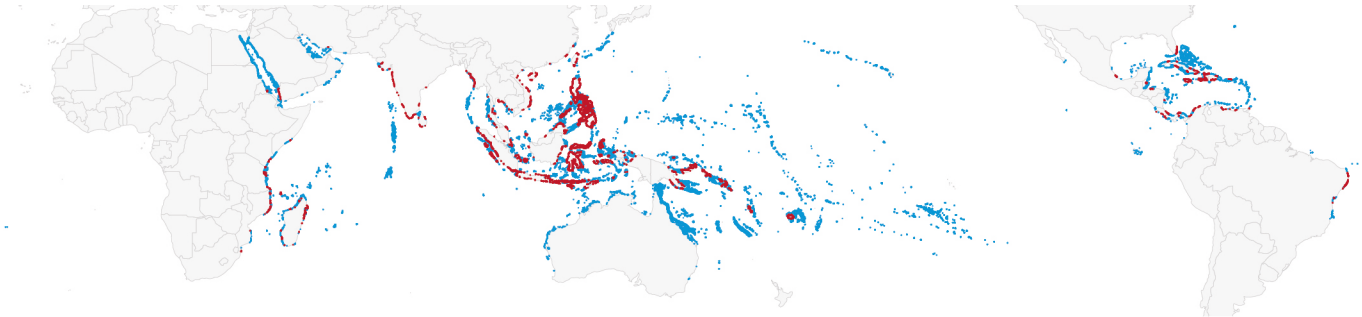
Beach Litter May Aggravate Women's Paid and Unpaid Workloads

The uncontrolled rise in plastic pollution and continued plastic leakage into the marine environment pose severe threats to marine life, sea birds and human wellbeing. Plastic pollution in coastal areas and at sea disrupts ecosystem processes, has detrimental effects on the benthic environment,[45] damages coral reefs, entangles and is ingested by animals, diffuses pathogenic vectors and facilitates the spread of invasive species,[46] which in turn affects human health, drives economic losses and worsens the wellbeing of coastal communities. Beach litter also impacts women's and men's use of time, and these impacts are not gender-neutral.

Given their heavy reliance on plastic packaging; poor waste management protocols; and intense fishing activities (with consequent abundance of abandoned, lost or discarded fishing gear (ALDFG)), Northern Africa and South-Eastern Asia see the largest concentrations of beach litter items globally (223 and 124 items per 100 square metres, respectively), compared to the global average (27 items per 100 square metres). This form of pollution has transboundary impacts, as almost 18 million tonnes of plastic pollution globally end up in countries different from where they were originally produced; and this figure has continued to increase from year-to-year over the past decade.[47]

Urban areas produce a substantial amount of the ocean's plastic pollution by dumping in or near rivers and in areas with ocean currents and winds. When litter is discarded in or near rivers, it can travel great distances out to sea and across borders. As a result, coral reefs located near river mouths are exposed to pollution – both solid and runoff pollution – which leads to declines in ocean health and biodiversity, and has consequential impacts on the livelihoods of people who are dependent on ocean ecosystems. This phenomenon is most glaring in parts of India, Indonesia, the Philippines and other parts of South-Eastern Asia (**FIGURE 38**) and disproportionately affects women, as they mainly fish near shores and often encounter barriers to change fishing locations. As a result of plastic pollution and

FIGURE 38. Coral reef habitat proximity to a mouth of a river modelled to emit more than one tonne of plastic/year into the ocean



Note: The map shows coral reef habitats within 20 km (red) and more than 20 km (blue) of the mouth of a river modelled to emit more than one tonne of plastic per year into the ocean. Each dot is a reef habitat. Plastic emissions at river mouths are modelled from upstream activities, by Lebreton, L.C.M., J. van der Zwet, J.W. Damsteeg, B. Slat, A. Andrady & J. Reisser (2017). River plastic emissions to the world's oceans. Nature Communications, Vol. 8, Article number 15611. Retrieved on 4 September 2026 from: River plastic emissions to the world's oceans | Nature Communications. Source: Map drawn by UN Women using the "Threat to coral reefs" layer (GRID-Arendal) from the Global Plastics Hub. Retrieved on 14 October 2026 from: Global Plastics Hub.

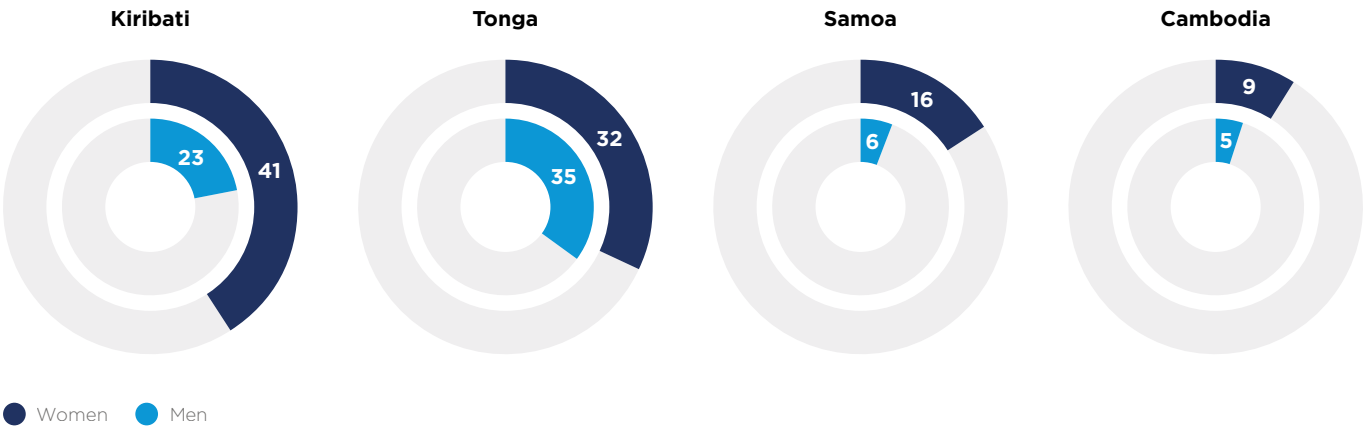
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related environmental pressures on the ocean, women may have to spend longer periods of time fishing in plastic-polluted shorelines to maintain yields. For those engaged in post-harvest operations, such as triaging, cleaning and preparing fish for selling in markets, increasing pollution also means worsening time burdens to separate fish from litter. In almost all countries where data are available, women noticed these burdens the most. For instance, in Kiribati, as many as 41 per cent of women who engaged in pre- and post-harvesting, and marketing operations activities saw their time increase, compared to only 23 per cent of men (**FIGURE 39**).[48]

In tropical regions, beach litter (e.g., bottles, containers, caps, etc.) hosts stagnant water which creates ideal breeding grounds for Aedes mosquitoes, contributing to the transmission of dengue fever, zika virus and chikungunya. In natural environments, Anopheles mosquitos also thrive where water is stagnant, which contributes to the spread of malaria. The correlations between mismanaged beach litter and the existence of these mosquitoes are clearly evident in Central America, Western Africa and South-Eastern Asia, where mismanaged waste abounds and mosquito larvae observations are frequently reported (**FIGURE 40**).

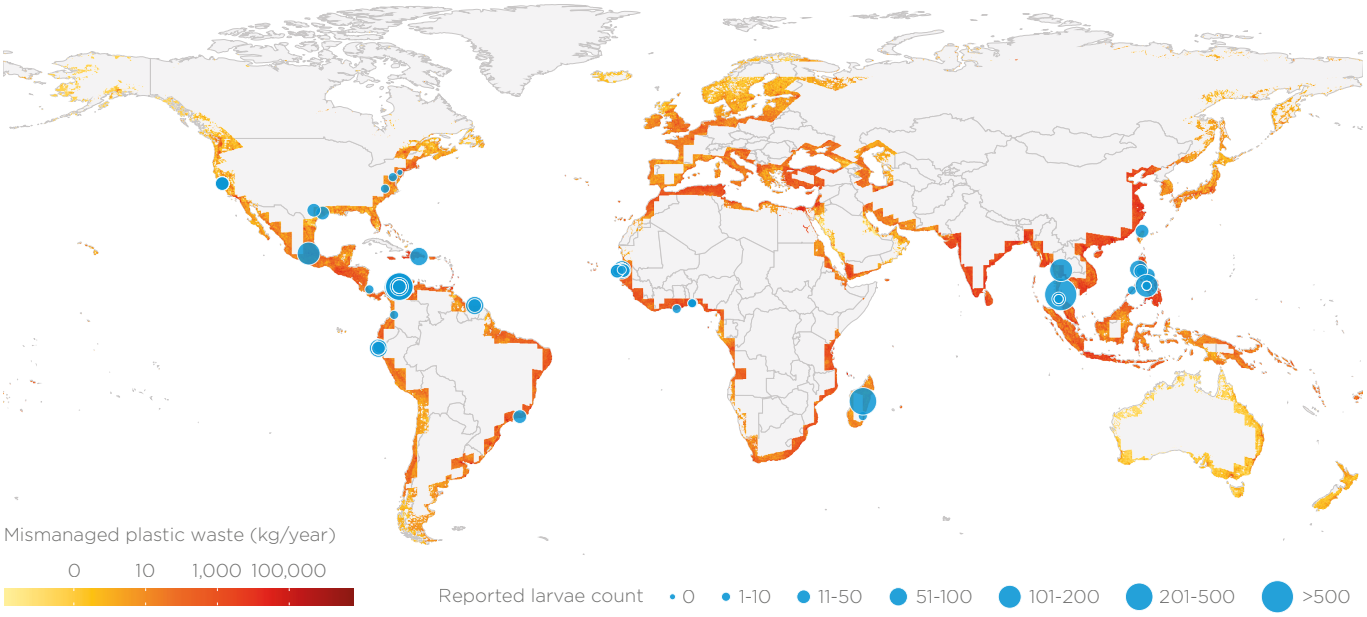
In environments where mosquito-borne diseases spread, infected children and adults are disproportionately cared for by women. For instance, in Viet Nam, women's care burdens are nearly four times as large as those of men, as women spend 78 minutes per day on unpaid care work and men spend only 22 minutes. Similarly, in Colombia, women spend four times the amount of time on unpaid care work, compared to men, as women spend 40 minutes per day on unpaid care work and men spend only 10 minutes.[49] Both countries see large amounts of mismanaged beach litter and mosquito larvae; the consequences for women in coastal areas in these locations will be substantial. The links between beach litter and women's time burdens are rarely recognized, but remain essential to understanding the holistic impact of pollution on coastal communities.

FIGURE 39. Proportion of people engaged in marine pre- and post-harvest, and marketing operations who saw increases in time spent processing food as a result of slow onset environmental phenomena, including pollution by sex (percentage), latest available year



Source: UN Women & Tonga Statistics Department (2023). Gender and Environment Survey 2022. Tonga Statistics Department: Nuku'alofa, Kingdom of Tonga; UN Women & Samoa Bureau of Statistics (2024). Gender and Environment Survey 2023. Samoa Bureau of Statistics: Apia, Samoa; UN Women & National Institute of Statistics (2025). Gender and Environment Survey 2024. UN Women: Phnom Penh, Cambodia; UN Women & Kiribati National Statistics Office (in press). Gender and Environment Survey 2025. Government of Kiribati: Tarawa, Kiribati.

FIGURE 40. Global patterns of coastal plastic waste (proxied by mismanaged waste), (kg/year) and mosquito larval abundance within 10km of the coastline (total count), 2017-2020



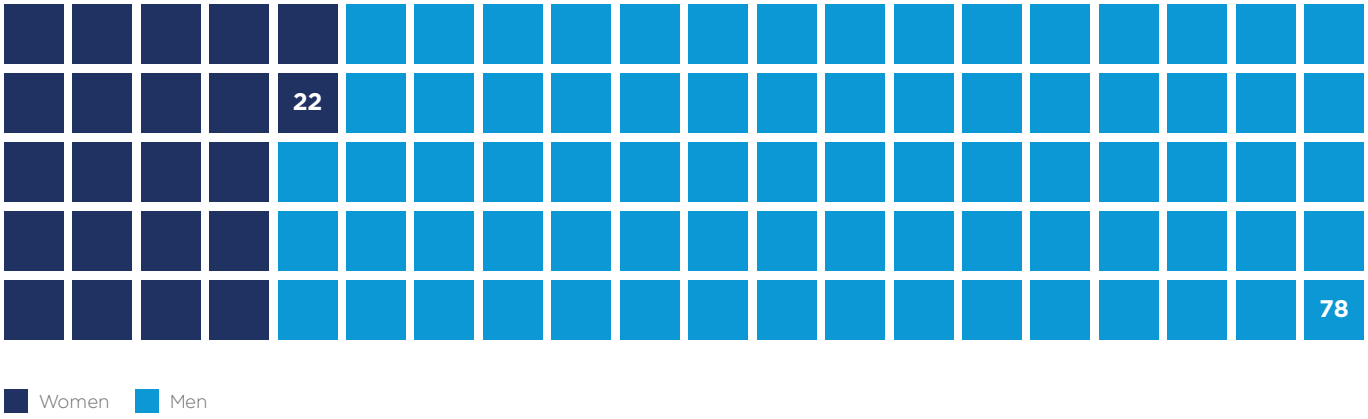
Note: Mosquito larvae count data is collected through citizen science; as such, the number of observations may bias representation. Source: Supplementary Data for "Future scenarios of global plastic waste generation and disposal." Retrieved on 4 September 2026 from: Mismanaged Plastic Waste Dataset; GLOBE Mosquito Habitat Mapper Data. Retrieved on 4 September 2026 from: Mosquito Habitat Data - GLOBE Observer - GLOBE.gov.

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Men are Overrepresented Among Decision-Makers Responsible for Marine Pollution

National lawmakers, ministers and national representatives in key intergovernmental agencies, such as the United Nations Environmental Assembly (UNEA), among others, make decisions with direct implications for marine pollution. As shown in **TABLE 1**, most of the persons in these top leadership and senior management positions are men. Men represent roughly 75 per cent of environment-related ministers and ministers of research and innovation who are responsible for making decisions related to managing the marine environment and science; whereas women's representation is even lower among Ministers of Agriculture, Food, Forestry, Fishing, and Hunting (14 per cent). Similarly, senior managers in international organizations that govern ocean resources are mostly men; only 22 per cent are women (**FIGURE 41**). The same is true for UNEA delegates; during UNEA's latest December 2025 session, only 40 per cent of the heads of delegation were women, and 32 per cent of women were participants at ministerial level or above meetings.[50] Women are also underrepresented as lead negotiators or other high level technical roles across the three Rio Conventions (UNFCCC, UNCCD, CBD). In 2025 women held 40 per cent of all focal point roles, while men held the remaining 60 per cent, although there were differences across regions and positions. Women represented only 25 per cent of focal points among African Parties to the conventions, whereas Eastern European Parties saw 67 per cent female representation. While women are gaining ground in some regions, systemic barriers continue to hinder their appointment to high-level technical and negotiating roles.[51]

FIGURE 41. Share of people in top leadership and senior management positions in international organizations managing maritime issues, by sex (percentage)

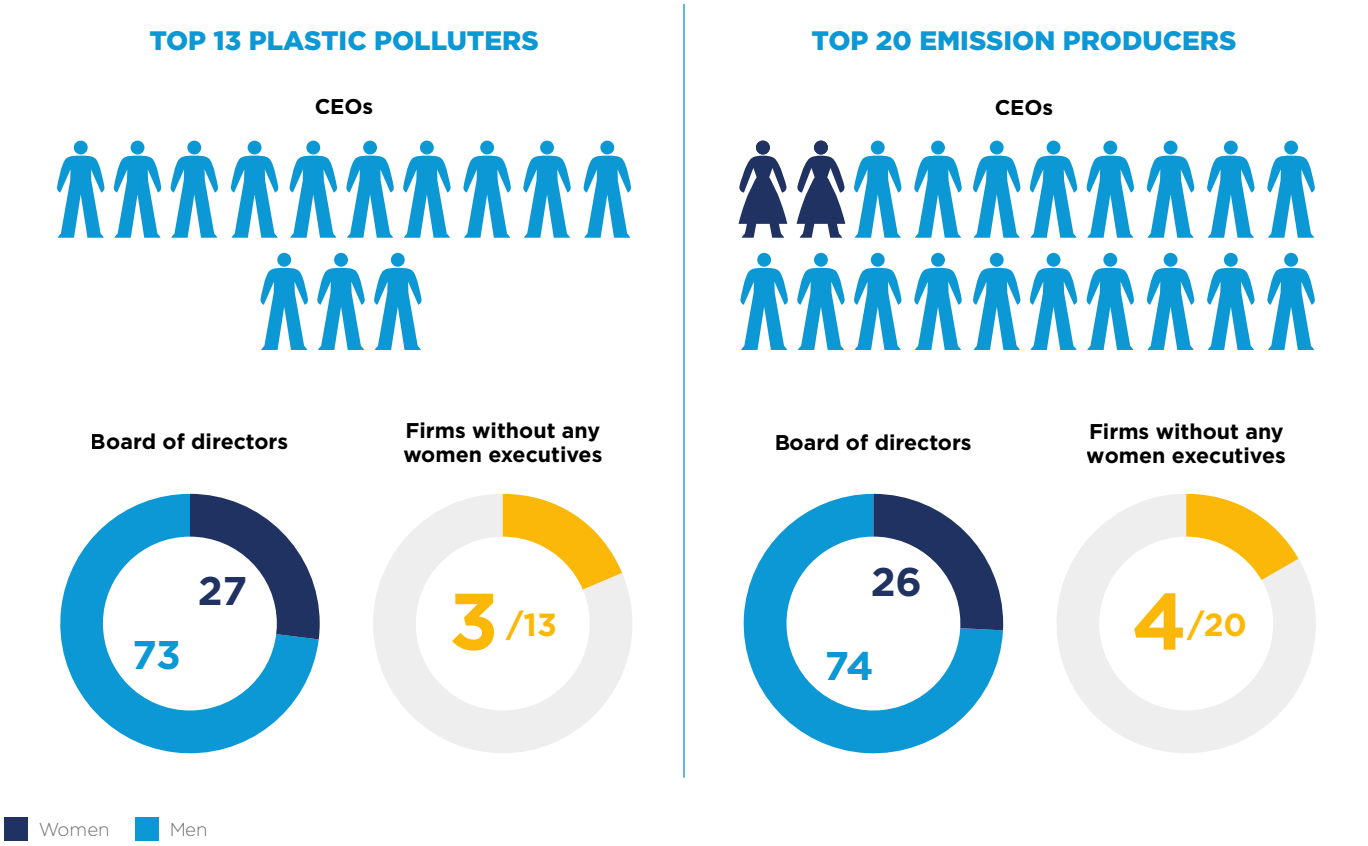


Note: Aggregate includes representatives from International Maritime Organization (IMO), International Association of Classification Societies (IACS), European Maritime Safety Agency (EMSA), International Seabed Authority (ISA), Commission on the Limits of the Continental Shelf (CLCS), and International Tribunal for the Law of the Sea (ITLOS).

While policymakers play critical roles in creating enabling environments for curbing and managing marine pollution, the private sector contributes enormously to the actual production and direct management of such pollution. Globally, an estimated 56 brands are responsible for more than 50 per cent of all plastic pollution on Earth, and 13 brands are the top plastic polluters, making an individual contribution of one per cent or more to the total plastic pollution.[52] **FIGURE 42** shows that among the top 13 plastic polluters, not one has a woman Chief Executive Officer (CEO); altogether, only 27 per cent of leadership positions in the boards of directors are held by women. Worse yet, three of the top 13 plastic polluters have no women managers at all. Similarly, among the top 20 firms responsible for the greatest cumulative CO_2 emissions contributing to ocean acidification, all but two have men CEOs and only 26 per cent of leadership positions on boards of directors are held by women. Studies have linked these top 20 firms to one fifth of total ocean acidification globally.[53]

Excluding women from leadership positions and roles limits diverse perspectives in corporate decision-making on sustainability and environmental responsibility. Companies with no women in leadership positions are likely to overlook the gendered impacts of plastic pollution and waste management, such as the impacts of discarding certain chemicals into waterways on pregnant women living nearby, and worsening unpaid care workloads associated with plastic waste driven vector-borne diseases. Without intentional action, this leadership gap risks reinforcing environmental harm and gender inequality. Promoting gender equity in climate-critical industries is not only a matter of fairness, but a strategic imperative for driving sustainable and just transitions.

FIGURE 42. Women's and men's representation among decision-makers in top global producers of plastic pollution and emissions



Note: The list contains 13 companies whose mean percentage contribution exceeds 1 per cent of the total plastic pollution observed is sourced from Cowger et al. (2024). Environmental Studies: Global producer responsibility for plastic pollution. Science Advances, Vol. 10, pp. 1-7. The composition of leadership by sex is based on publicly available data from each company's website (accessed on 10 August 2026). The list of 20 fossil fuel companies whose emissions are responsible for more than half of ocean acidification is sourced from Licker, R., B. Ekwurzel, S.C. Doney, S.R. Cooley, I.D. Lima, R. Heede & P.C. Frumhoff (2019). Attributing ocean acidification to major carbon producers. Environmental Research Letters, Vol. 14. Retrieved on 1 September 2026 from: Attributing ocean acidification to major carbon producers – IOPscience. The composition of leadership by sex is based upon publicly available data from each company's website (accessed on 10 August 2026).

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7. In almost every country with available data, where the associations appear robust, the hotspots with high salinity and a high per centage of underweight infants occupy one identifiable stretch of coast, while the rest sits at or below the national average. The stretch that lights up tends to be the more arid or delta-influenced areas of the northern and north-eastern shore in Brazil, the Gujarat and eastern delta coasts in India, and the Caribbean, the drier eastern coasts of Tunisia, and the western coast of Algeria. That concentration is consistent with a salinity mechanism, since it is these low-lying, evaporation-prone and saltwater-intruded stretches that soil salinity would be expected to matter most. The Philippines is the informative exception, as hotspots dissolve into a scatter across the Central Visayas and Mindanao, with no coherent belt, which aligns with a near-zero national gap in the per centage of underweight infants between high and low salinity areas.
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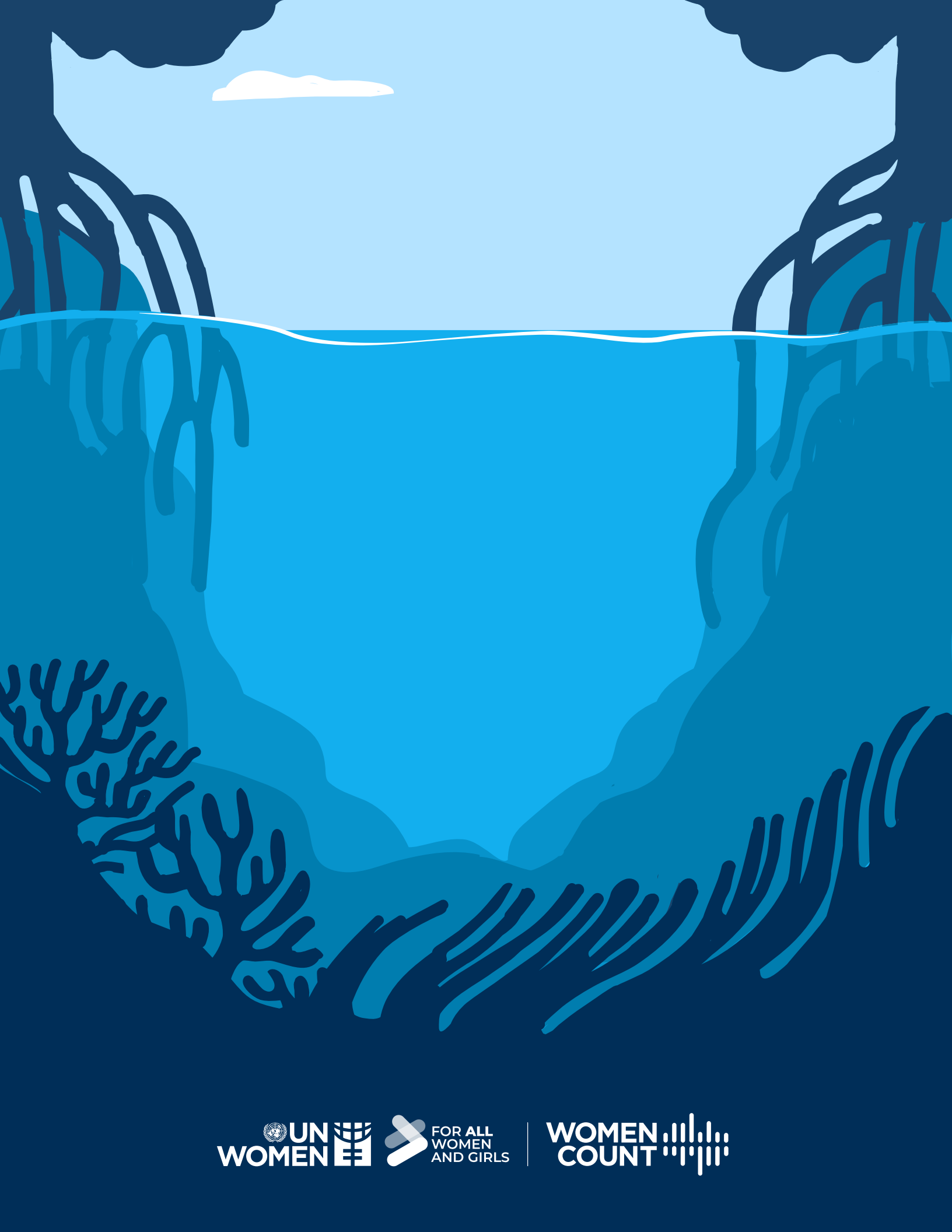
33. Though the ocean sinks much of the anthropogenic emissions it absorbs, it releases back into the air breathes out almost the same amount of CO_2 it gathers from non-anthropogenic processes, generating a zero net impact on atmospheric levels from natural processes. Because humans release more emissions than oceans and other ecosystems are able to absorb, the additional emissions accumulate in the atmosphere and cause global warming.
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44. Refers to EBUS, which includes the California (Canada, Mexico, USA), Canary (Mauritania, Morocco, Senegal), Benguela (Angola, Namibia, South Africa) and Humboldt (Chile, Ecuador, Peru) current systems. The Arabian/Somali current system produces only seasonal upwelling in Oman, Somalia and Yemen; see Kämpf, J. & P. Chapman (2016). *Upwelling Systems of the World: A Scientific Journey to the Most Productive Marine Ecosystems*. Springer International Publishing. In addition, open ocean upwelling systems exist in high waters in the Equator (Equatorial Upwelling Zone, across Central and Eastern Pacific and Atlantic Oceans) and the Southern Ocean (Southern Ocean Upwelling Zone, surrounding Antarctica), however, given their distance to coastlines they have been left out of this analysis.
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48. In Tonga, the opposite is true. This may be because traditional gender roles in the country dictate that men focus on off-shore fishing and undertake related pre-harvest activities such as setting up heavy equipment and mechanical maintenance, which is highly labour intensive. Upon return, men in Tonga also handle the fracturing and transporting of heavy blocks of ice to sort and pack large quantities of fish in preparation for marketing (FAO, 2026, Fisheries and aquaculture in Tonga).
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