FRENCH POLYNESIA

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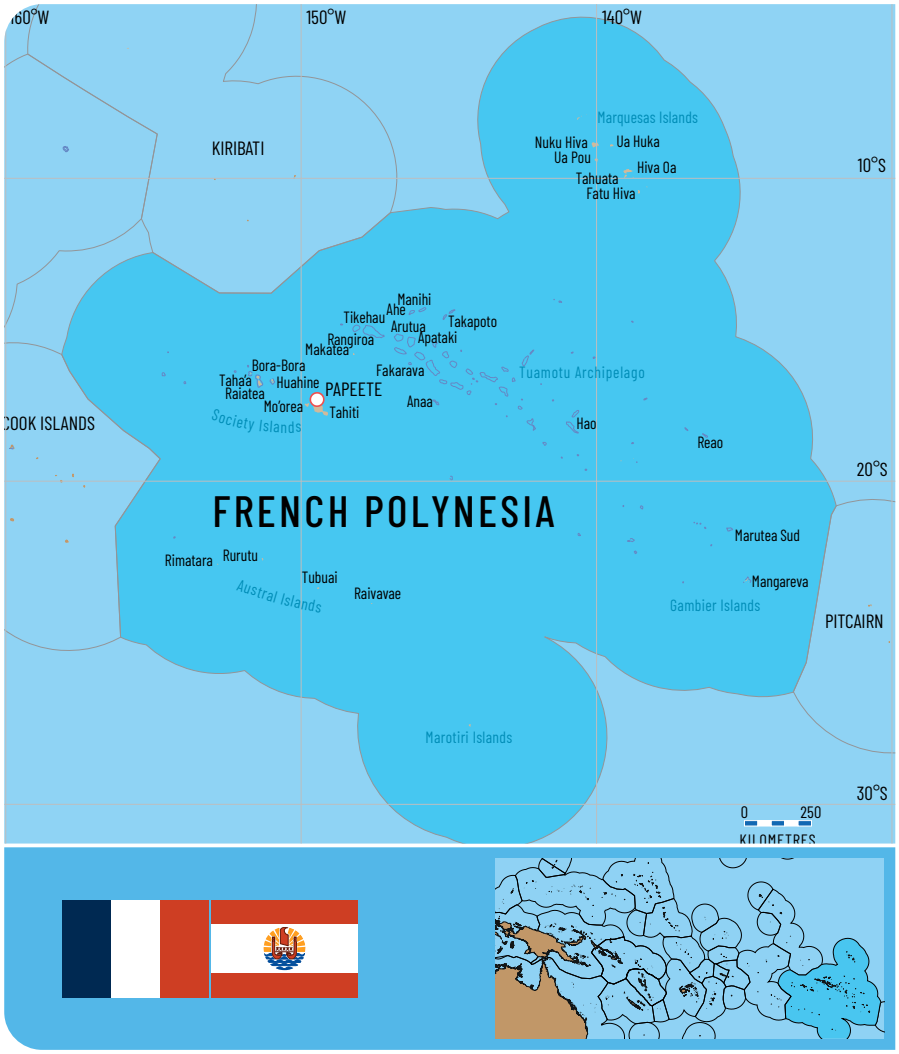
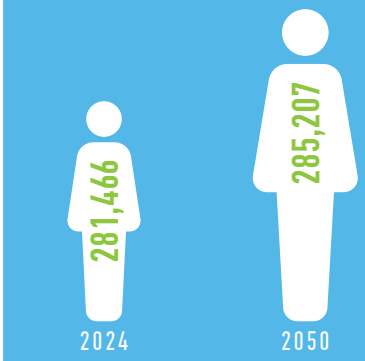
FRENCH POLYNESIA





51% ♂ 49% ♀

POPULATION [i]

EEZ AREA
4,767,240 km²

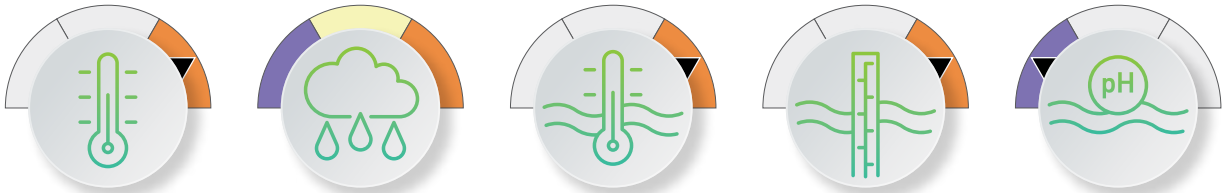
LAND IS 0.07 % OF EEZ

LAND AREA [ii]
3521 km²

* Annual average using 2014–2024 data

SUMMARY OF CLIMATE CHANGE PROJECTIONS

2050

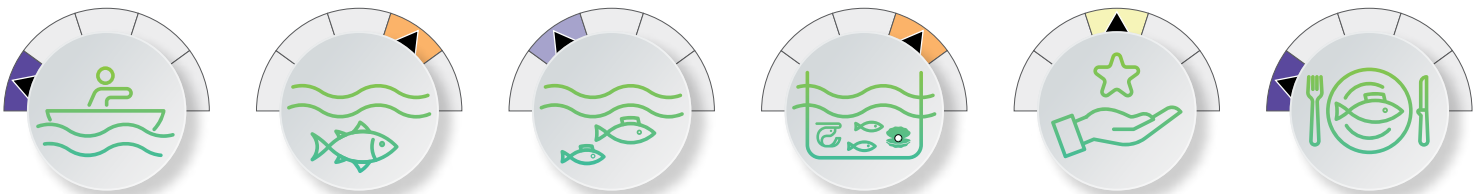


AIR TEMPERATURE | ANNUAL RAINFALL | SEA SURFACE TEMPERATURE | SEA LEVEL | OCEAN pH

CHANGE SCALE

DECREASE | STABLE | INCREASE

SUMMARY OF CLIMATE CHANGE IMPLICATIONS [iii]



COASTAL FISHERIES | OCEANIC FISHERIES | FRESHWATER FISHERIES | AQUACULTURE | LIVELIHOODS AND ECONOMIES | FOOD SECURITY

CHANGE SCALE

LARGE DECREASE | SMALL DECREASE | STABLE | SMALL INCREASE | LARGE INCREASE

i Data source: SPC Pacific Data Hub https://pacificdata.org/population-dashboard
ii Data source: SPC Statistics for Development Division https://sdd.spc.int
iii Relative to the Reference Periods 2010–2020 for coastal fisheries and 1980–2010 for oceanic fisheries.

RECOMMENDED ADAPTATION ACTIONS

These recommended adaptations are based on the key vulnerabilities and implications of climate change for fisheries and aquaculture, and should be initiated or strengthened. A range of adaptations and supporting policies are provided in Chapter 10 for decision-makers to select those that are most appropriate to their context and priorities (see Table 10.1). Central to all future adaptation are the following principles:

1. Strengthen data collection by improving (or establishing) national fisheries and aquaculture monitoring systems linked to management decision-making.
2. Integrate local knowledge to inform adaptation actions for coastal and freshwater ecosystems, food security, and cultural heritage. Equity - especially gender equity – and social inclusion need to be a key focus.
3. Implement effective governance, including through community-based management and scaling-up of successful initiatives, to ensure adaptation actions reflect local needs and priorities.
4. Diversify and secure funding to support national- and community-level actions, alongside capacity building to sustain adaptation initiatives.

Food and nutrition security

Recommended adaptations

Food and Nutrition 1: Implement sustainable ecosystem-based approach to fisheries management

Food and Nutrition 2: Sustain the production of coastal fish and invertebrates through context-specific management

Food and Nutrition 3: Manage freshwater and estuarine fisheries to harness opportunities

Food and Nutrition 4: Diversify blue food production systems

Food and Nutrition 6: Improve post-harvest preservation methods for fish and invertebrates to prepare for sudden shocks

Food and Nutrition 7: Promote education and awareness on the importance of protecting aquatic habitats, species and the foods they supply

Sustainable livelihoods

Recommended adaptations

Livelihoods 1: Diversify aquaculture commodities and develop new farmed climate-resilient species, strains and varieties

Livelihoods 2: Apply innovative technologies and climate-smart tools for pond aquaculture and mariculture

Livelihoods 3: Diversify production of fisheries and aquaculture commodities

Livelihoods 4: Improve technical and business viability of fisheries

Livelihoods 5: Develop sustainable marine and coastal tourism

Economies and government revenue

Recommended adaptations

Economic Revenue 1: Implement climate-informed fisheries management

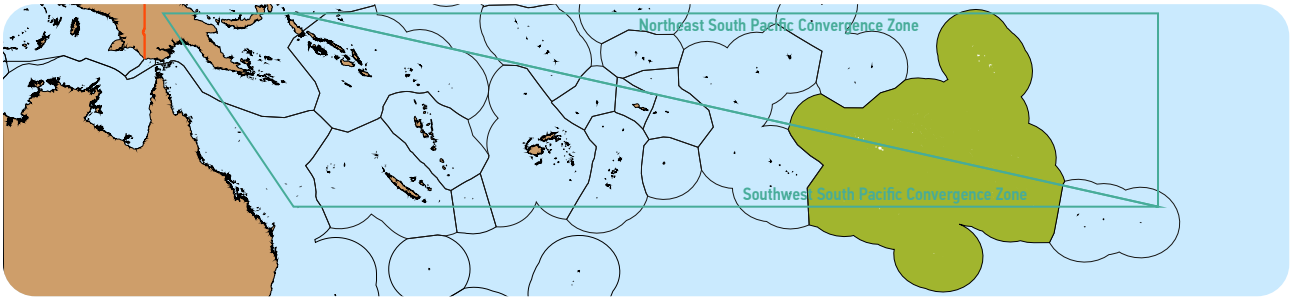
Economic Revenue 2: Develop policies and strategies that integrate climate change implications into fisheries and aquaculture management

Economic Revenue 3: Implement energy efficiency programs for fisheries and aquaculture

Economic Revenue 5: Maintain the contribution of fisheries and aquaculture to government revenue and economies

Economic Revenue 6: Climate-proof infrastructure

Projected changes in atmospheric and oceanic climate



French Polynesia covers a large latitudinal range, with the northern islands in the Northeast Pacific Convergence and the southern islands in the Southwest Pacific Convergence climate zones. It is expected to experience the following climate changes by 2050 under a medium greenhouse gas emissions scenario (SSP2-4.5) and a high emissions scenario (SSP5-8.5)[iv], relative to 1995–2014 baseline (further details in Chapter 2).

		AIR TEMPERATURE	RAINFALL	SEA SURFACE TEMPERATURE	SEA LEVEL	OCEAN pH
2050	MEDIUM EMISSIONS (SSP2-4.5)	+0.7 to +1.1 °C	-2.3 to +5.5 %	+0.6 to +1.1 °C	+0.1 to +0.3 m	-0.1
	HIGH EMISSIONS (SSP5-8.5)	+0.9 to +1.6 °C	-2.8 to +6.4 %	+0.8 to +1.5 °C	+0.2 to +0.4 m	-0.1
	CONFIDENCE [v]	HIGH	MEDIUM	HIGH	HIGH	HIGH

French Polynesia is also expected to experience the following changes to regional climate processes by 2090 under a medium and high greenhouse gas emissions scenario, relative to 1995–2014 baseline.

		TROPICAL CYCLONES	EL NIÑO SOUTHERN OSCILLATION (ENSO)	MARINE HEATWAVES
2090	MEDIUM EMISSIONS (SSP2-4.5)	Decrease in frequency; Increase in intensity	ENSO will continue as a source of interannual variability; La Niña and El Niño extremes are projected to increase	2–9 times more frequent (global projection)
	HIGH EMISSIONS (SSP5-8.5)			3–15 times more frequent (global projection)
	CONFIDENCE [v]	LOW TO MEDIUM	LOW	N/A

		OCEAN CIRCULATION	OCEAN STRATIFICATION	OCEAN OXYGEN CONTENT	NITRATE CONCENTRATION
2090	MEDIUM EMISSIONS (SSP2-4.5)	Intensification and poleward extension of northern and southern hemisphere subtropical gyres		-6.6 %	-0.60 mmol/m^3
	HIGH EMISSIONS (SSP5-8.5)		+0.58 kg/m^3 (between 0 and 200 m); Mixed layer depth shoals by 19.5 m (global)	-11.2 %	-1.00 mmol/m^3
	CONFIDENCE [v]	MEDIUM	VERY HIGH	HIGH	N/A

CONFIDENCE SCALE

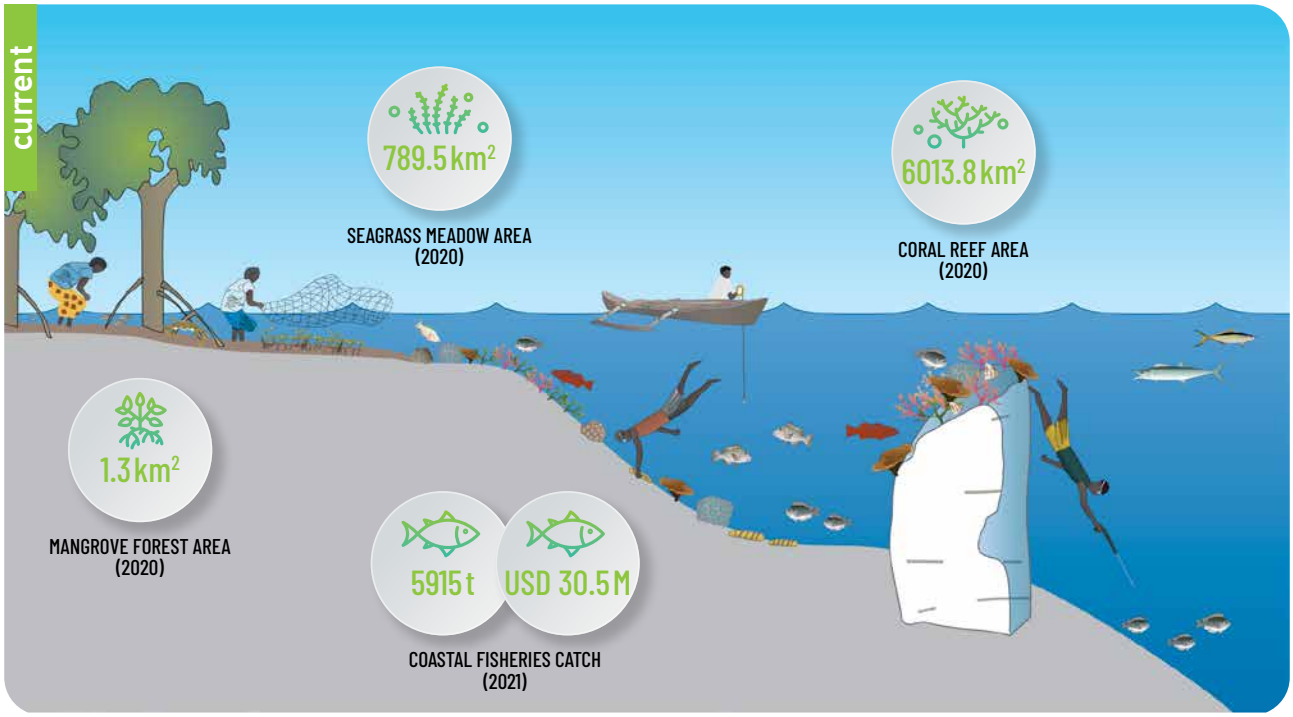
VERY LOW	LOW	MEDIUM	HIGH	VERY HIGH

iv The shared socioeconomic pathways (SSP) represent plausible futures of how society's choices might affect greenhouse gas emissions, and how those choices might influence climate change.

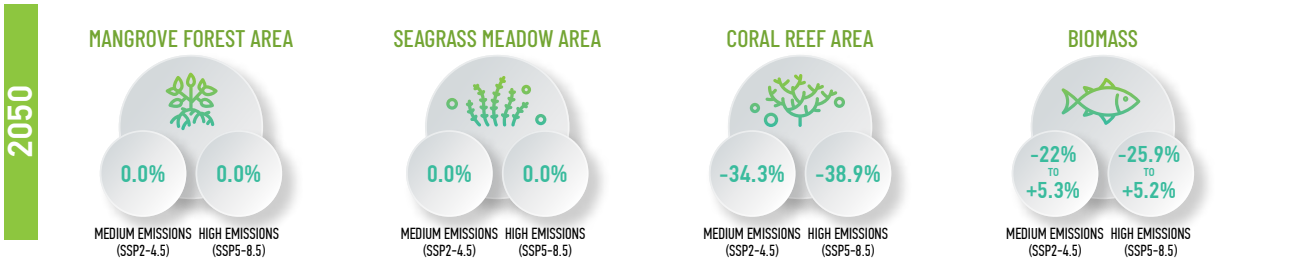
v Confidence levels reflect uncertainty in attribution of the observed impact to climate change.

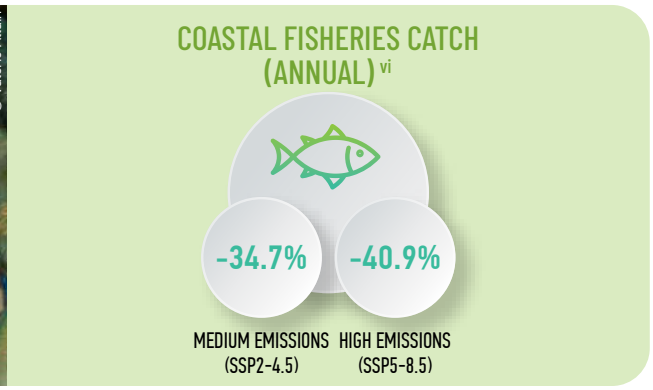
Coastal fisheries

Coastal fisheries in French Polynesia target demersal fish (including emperors, snappers, parrotfish, surgeonfish and groupers), invertebrates for export (e.g. sea cucumbers) and gleaned from intertidal habitats (e.g. lobster), and nearshore pelagic fish (including trevally and tuna) using a range of fishing methods. Coastal fisheries are critically important for food, local livelihoods and jobs (further details in Chapter 3).



Coastal fish and invertebrates are expected to be directly impacted by increasing sea surface temperature, ocean acidification (declining pH), and changing rainfall patterns, and indirectly impacted by declines in coastal habitats (coral reefs, seagrass meadows and mangroves) by 2050. This will drive changes in habitat area, fish biomass and coastal fisheries catches.



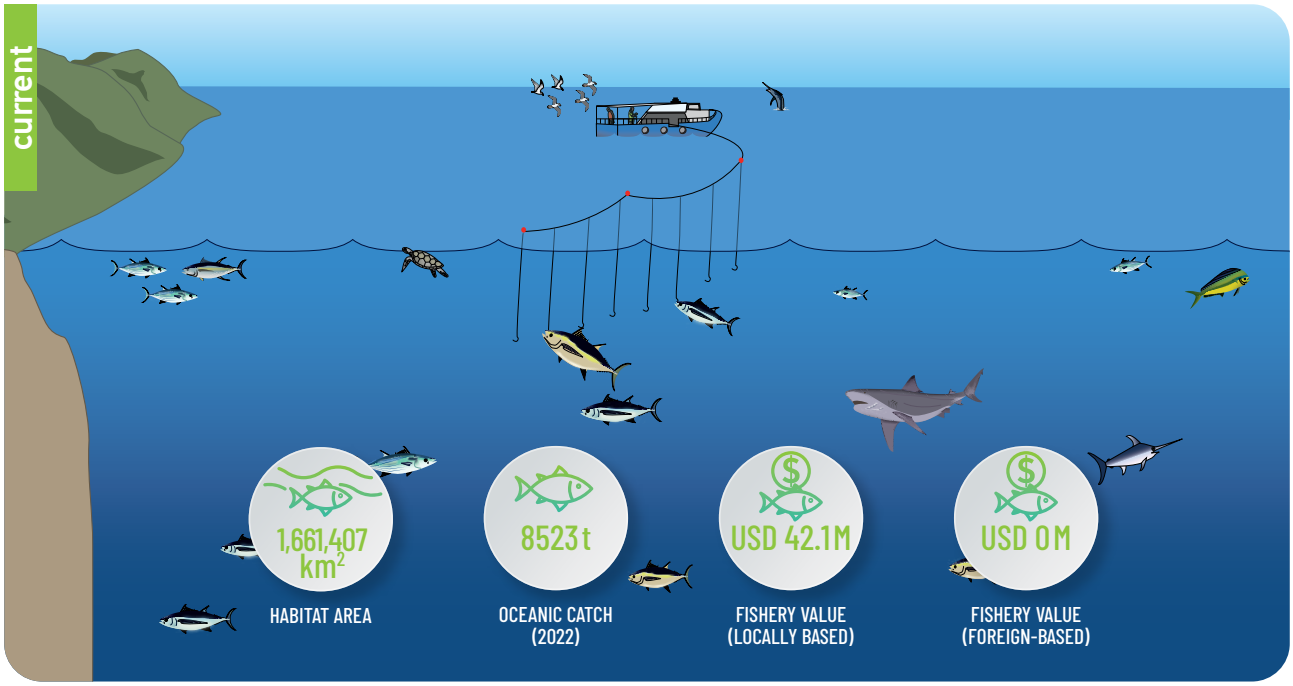


There is evidence that some stocks may be overfished and/or fishing rates are too high. Better stock assessments are needed.

vi Relative to the Reference Period 2010–2020.

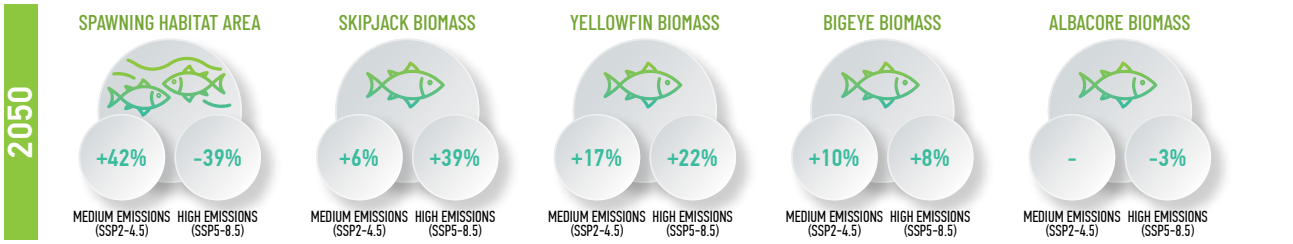
Oceanic fisheries

Offshore fisheries in French Polynesia primarily target three species of tuna – yellowfin, bigeye and albacore – and report a small catch of skipjack tuna. In 2021, there were 73 locally based tuna longline vessels operating within French Polynesia's exclusive economic zone (EEZ), and no foreign vessels have operated there since 2000[vii]. The tuna fishery provides government revenue and economic development (further details in Chapter 4).



Offshore tuna are expected to be directly impacted by changes in ocean temperature, stratification and oxygen content, and indirectly impacted by changes in available spawning habitat area by 2050. This is expected to shift the distribution of tuna, with yellowfin, bigeye and albacore moving into high seas areas.

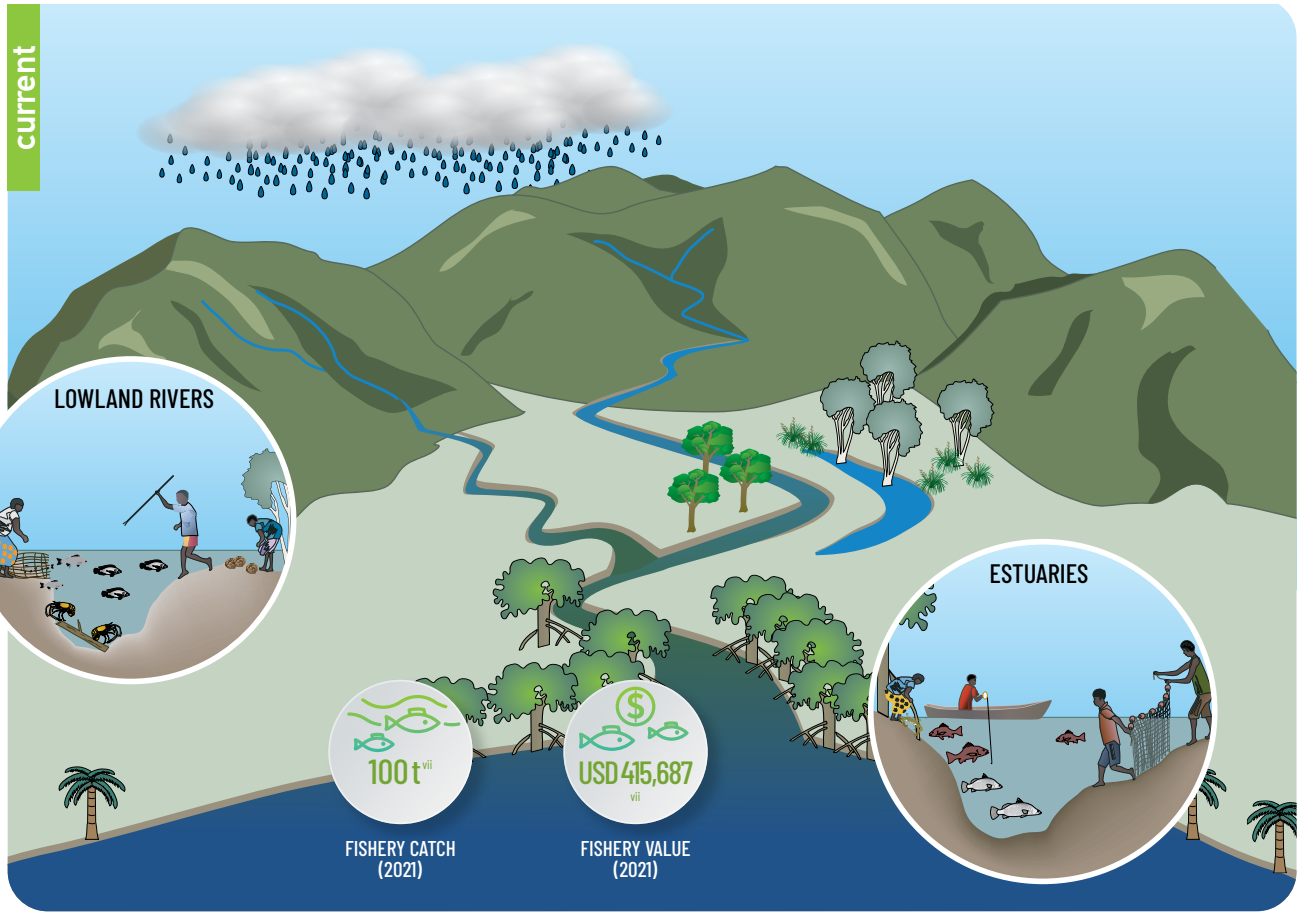
PROJECTED BIOMASS (WITHOUT FISHING) RELATIVE TO 2001–2010 REFERENCE PERIOD



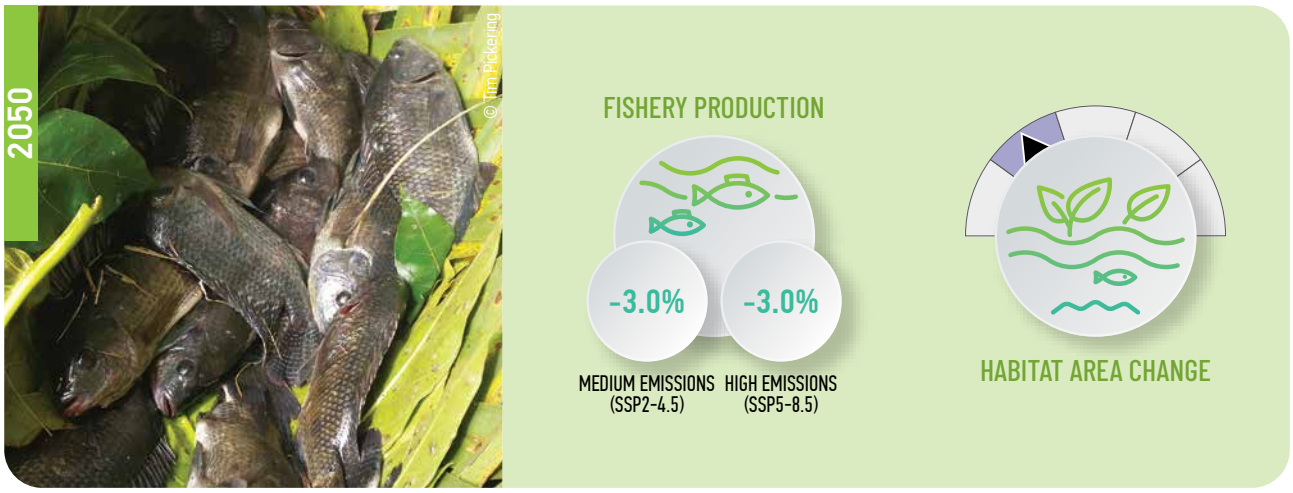
vii Data from 2021: Gillett R., Fong M. (2023) Fisheries in the economies of Pacific Island countries and territories (Benefish Study 4). Pacific Community (SPC), Noumea, New Caledonia.

Freshwater and estuarine fisheries

Freshwater and estuarine fisheries in French Polynesia target freshwater prawns (*Macrobrachium* spp.) and finfish (including flagtails, gobies, tilapia, eels). The main habitats are lowland rivers and estuaries. Freshwater and estuarine fisheries are important for food and local livelihoods, particularly for inland communities (further details in Chapter 5).



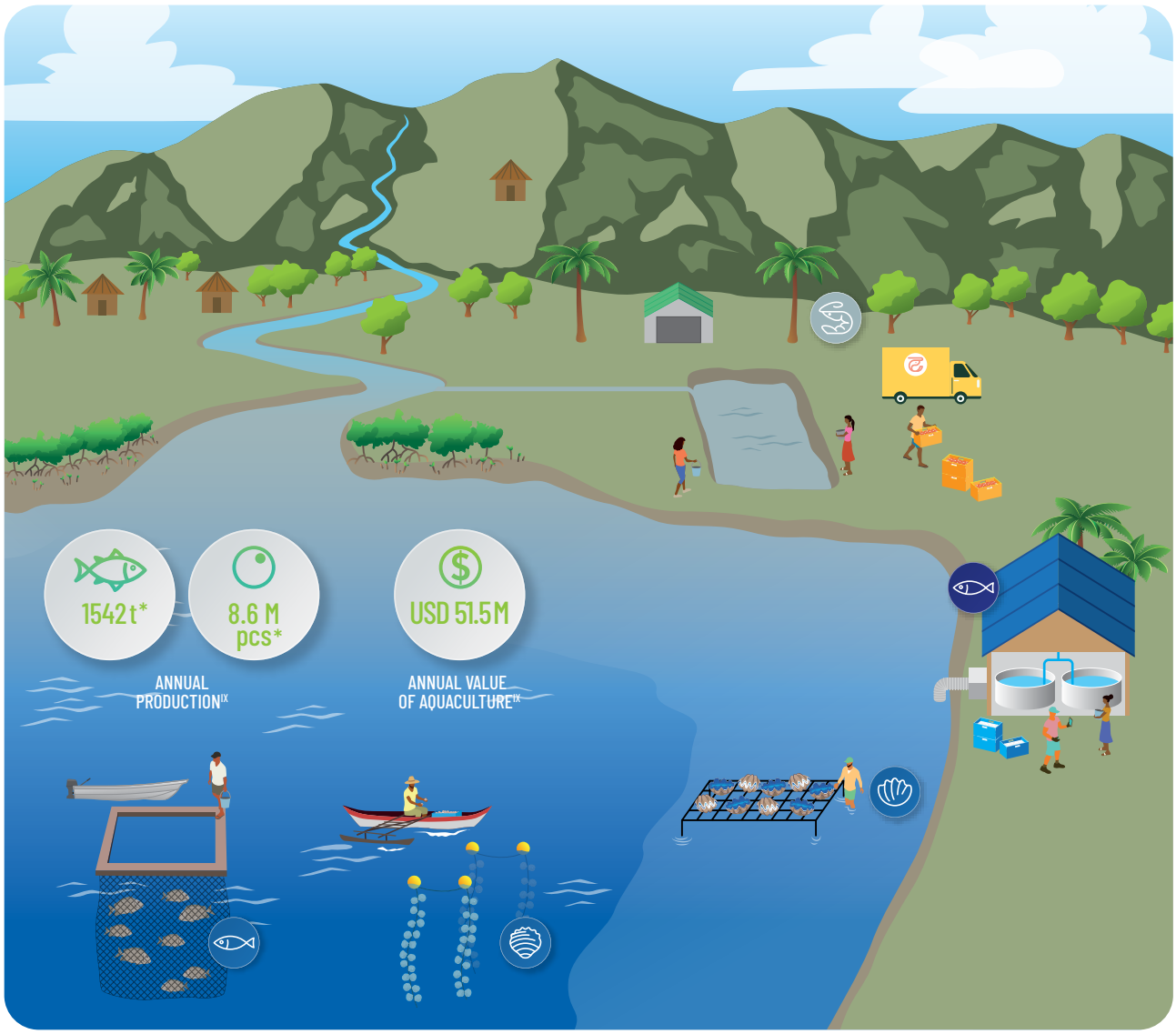
Freshwater and estuarine fish are expected to be directly affected by changes in rainfall patterns that drive river flow, and indirectly affected by increased duration of river flows and habitat accessibility by 2050. This is expected to provide opportunities for the expansion of fisheries and increased production.



viii Fishery catch and value are likely underestimates due to unreported catches.

Aquaculture

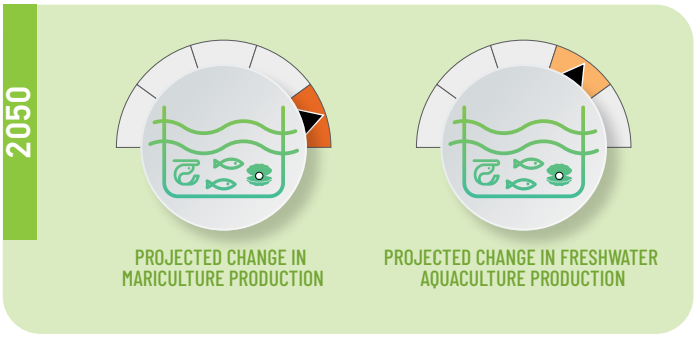
The main commodities farmed in French Polynesia are pearl oysters, marine shrimp, batfish and giant clams, which provide food, local livelihoods and jobs, and government revenue (further details in Chapter 6).



Marine shrimp (paeneid) *Pearl oysters* *Giant clams* *Reef fish* *Hatchery for pearl oysters, batfish and sea cucumbers*

Mariculture is expected to be directly impacted by increasing sea surface temperature, ocean acidification (declining pH), and more intense storms.

Freshwater pond aquaculture is expected to benefit from increases in freshwater habitat but be impacted by increasing temperatures and disease, changing rainfall, storms and sea level rise. This will have implications for aquaculture production by 2050.



CHANGE SCALE

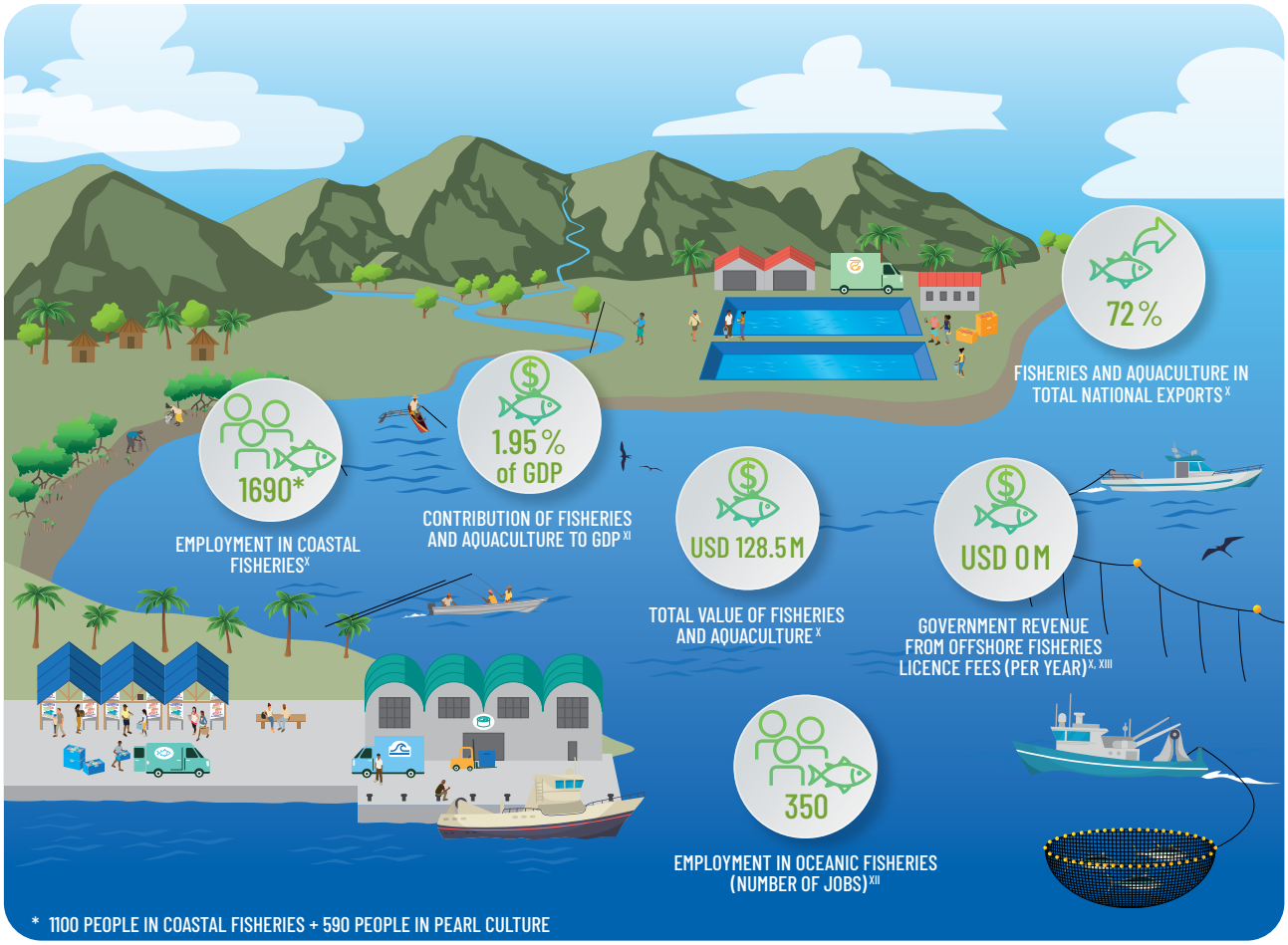
LARGE DECREASE	SMALL DECREASE	STABLE	SMALL INCREASE	LARGE INCREASE

* *Tonnes is for pearl shell and batfish, and pieces is for pearls and giant clams*

ix *Data source: Gillett R., Fong M. (2023) Fisheries in the economies of Pacific Island countries and territories (Benefish Study 4). Pacific Community (SPC), Noumea, New Caledonia.*

Livelihoods and economies

Fisheries and aquaculture are important for local culture and providing household income, jobs and government revenue in French Polynesia (further details in Chapter 7).



The projected decrease in coastal fisheries catches is expected to affect livelihoods in artisanal fisheries. Pearl oyster mariculture is expected to be impacted by the reduction of spat collection, and marine shrimp production may be more difficult. No significant impact is expected on livelihoods or GDP due to the low relative contribution of fisheries and aquaculture. No significant impact is expected on government revenue because no purse-seine fishing is expected in the EEZ.

CHANGE SCALE

LARGE DECREASE	SMALL DECREASE	STABLE	SMALL INCREASE	LARGE INCREASE

x Data source: Gillett R., Fong M. (2023) Fisheries in the economies of Pacific Island countries and territories (Benefish Study 4). Pacific Community (SPC), Noumea, New Caledonia.

xi National GDP in 2020.

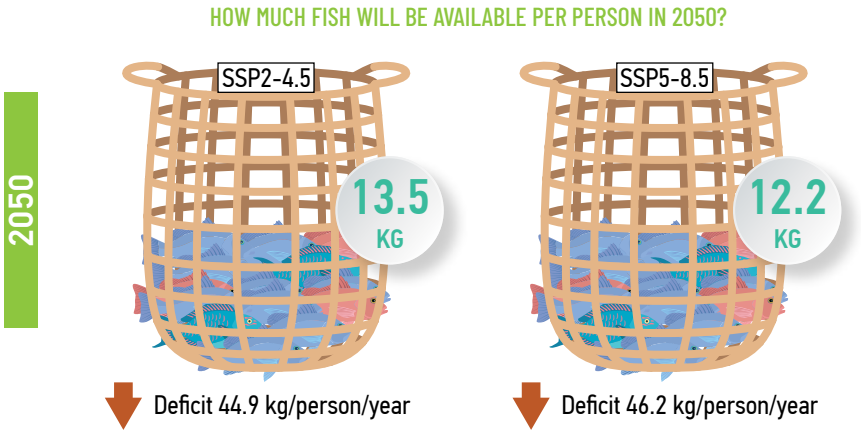
xii Primarily in tuna-related employment, including harvest, processing, observers, government and ancillary services. Data source: Politique sectorielle de la pêche hauturière de la Polynésie française 2018-2022. Etat des lieux, document d'orientation stratégique et plan d'action - MINISTERE DU DEVELOPPEMENT DES RESSOURCES PRIMAIRES, DES AFFAIRES FONCIERES, DE LA VALORISATION DU DOMAINE ET DES MINES.

xiii Average value 2017-2021

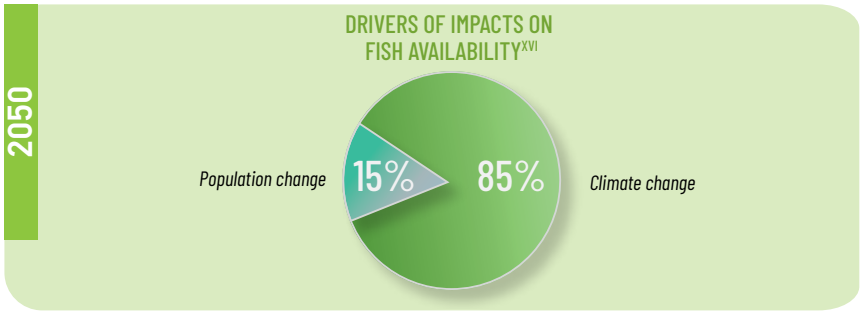
Aquatic food security

Aquatic (blue) foods provide a critically important source of nutrition in French Polynesia, and current consumption is 58 kg/person/year, including locally and imported reef and other finfish, shellfish, canned fish and pelagic fish (further details in Chapter 8)[xiv].

French Polynesia is projected to experience a deficit in fish supply by 2050 based on current fisheries catch rates and average consumption. This will be driven by climate change impacts on coastal, estuarine and freshwater fisheries, and exacerbated by population growth. There is expected to be a decline in available whole fish by 2050[xv] and the possibility of insufficient access to aquatic foods, resulting in **high vulnerability**.



To meet the future needs of a growing population and address declining catches for local consumption under climate change, sustainable coastal and estuarine fisheries management is essential. A greater contribution from pelagic fish, canned fish and aquaculture, and other protein sources (e.g. agriculture), will also be required to support food security and good nutrition. Any adaptations should consider environmental and social safeguards and avoid maladaptation.



xiv Data estimated for whole fish from: Gillett R., Fong M. (2023) Fisheries in the economies of Pacific Island countries and territories (Benefish Study 4). Pacific Community (SPC), Noumea, New Caledonia. Note that reef and other finfish include freshwater and estuarine fish.

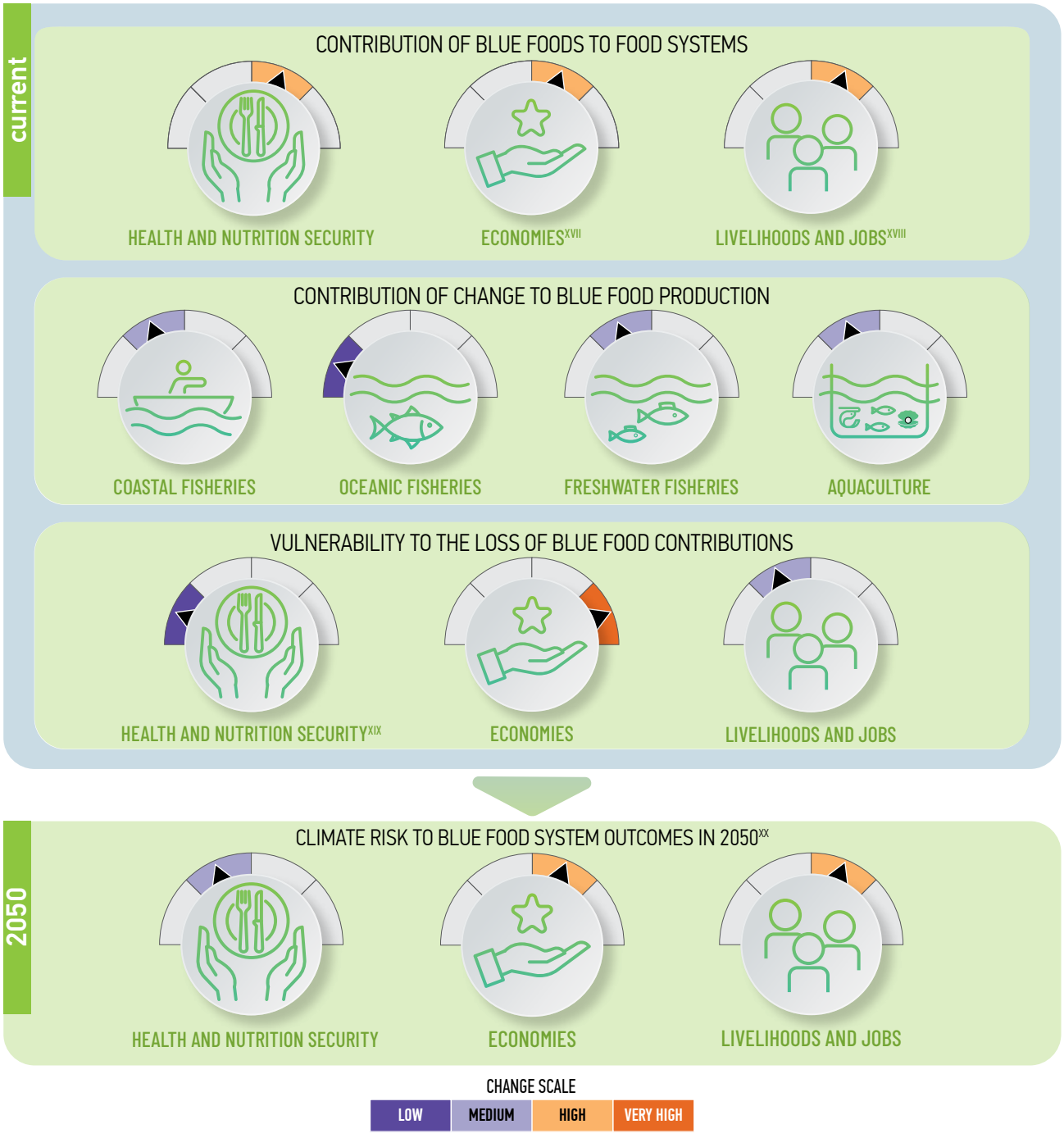
xv Based on projected coastal, estuarine and freshwater fisheries catches by 2050 from Chapters 3 and 5.

xvi Based on current aquatic food consumption levels. Note that agriculture can also provide additional protein sources to supplement a decline in aquatic foods, however any adaptations should consider environmental and social safeguards and avoid maladaptation.

Blue food systems

In the Pacific Islands region, blue foods contribute significantly to nutrition security and health, economies, livelihoods and jobs. By comparing contributions, climate impacts, and vulnerabilities across these outcomes, priority climate actions can be identified for sustaining their role in sustainable development under climate change (further details in Chapter 9).

In French Polynesia, blue foods make significant contributions to nutrition security and health, economies, livelihoods and jobs. Compared to other Pacific islands, projected climate impacts to blue food production by 2050 are medium to high. Socioeconomic conditions make French Polynesia highly vulnerable to climate-induced economic losses.



Altogether, the contributions of blue foods to sustainable development in French Polynesia face high levels of climate risk, due to higher levels of dependence and vulnerability. Priority climate actions can focus on reducing vulnerability through broader sustainable development and economic diversification.

xvii Including variables such as total fisheries production value and foreign access fees.
xviii Including variables such as total number of jobs across supply chains, share of households for which fishing is the main source of income and gender equity considerations.
xix Including nutrition-related health outcomes such as nutrient deficiencies and noncommunicable diseases.
xx Risk is shown for a high-emissions scenario (SSP5-8.5). Rapid emissions reduction would reduce climate risk.