



Aquatic food consumption in the Pacific region

KEY MESSAGES

- Aquatic food is the most accessible and widely consumed animal source food for coastal people in the Pacific region.
- Pacific people, excluding PNG, Fiji and several territories, consume¹, on average, 43 kg of aquatic food per year.
- Fresh fish account for 70% of aquatic food consumption, consisting of reef fish (34%), pelagic fish (14%) and unclassified fresh fish (22%).
- Almost half of aquatic food consumption is sourced from own account production.
- Continued investment in improved estimates of national per capita consumption is critical to underpinning evidence-based policy development.

CONTEXT

Aquatic food, including fish, shellfish, aquatic plants, and other aquatic meats, produced via capture or fisheries and aquaculture, and in fresh or preserved form, is the most important source of food for many millions of people in the developing world, providing protein and micronutrients not readily available from other sources. Despite the benefits of consuming aquatic food, it remains surprisingly hidden in analyses and policy prescriptions for improving global food and nutrition security. The dependence on aquatic foods for nutrition and income is no more apparent than in the Pacific region where small-scale coastal fisheries are a critical source of food and income. Catching, trading, and eating aquatic food is central

to Pacific diets, livelihoods, and economies, and most is gleaned and caught close to shore from reefs, lagoons, and mangrove forests, and it is widely considered to be the most accessible and consumed animal source food for coastal people. The dearth of nationally representative aquatic food consumption data is an impediment to policy development.

In this brief, we analyse the Pacific Food Consumption Database (PFCD), which contains harmonised food consumption data from the most recent household income and expenditure surveys (HIES) of 14 Pacific Island countries and territories (PICTs), to provide aquatic food consumption estimates.

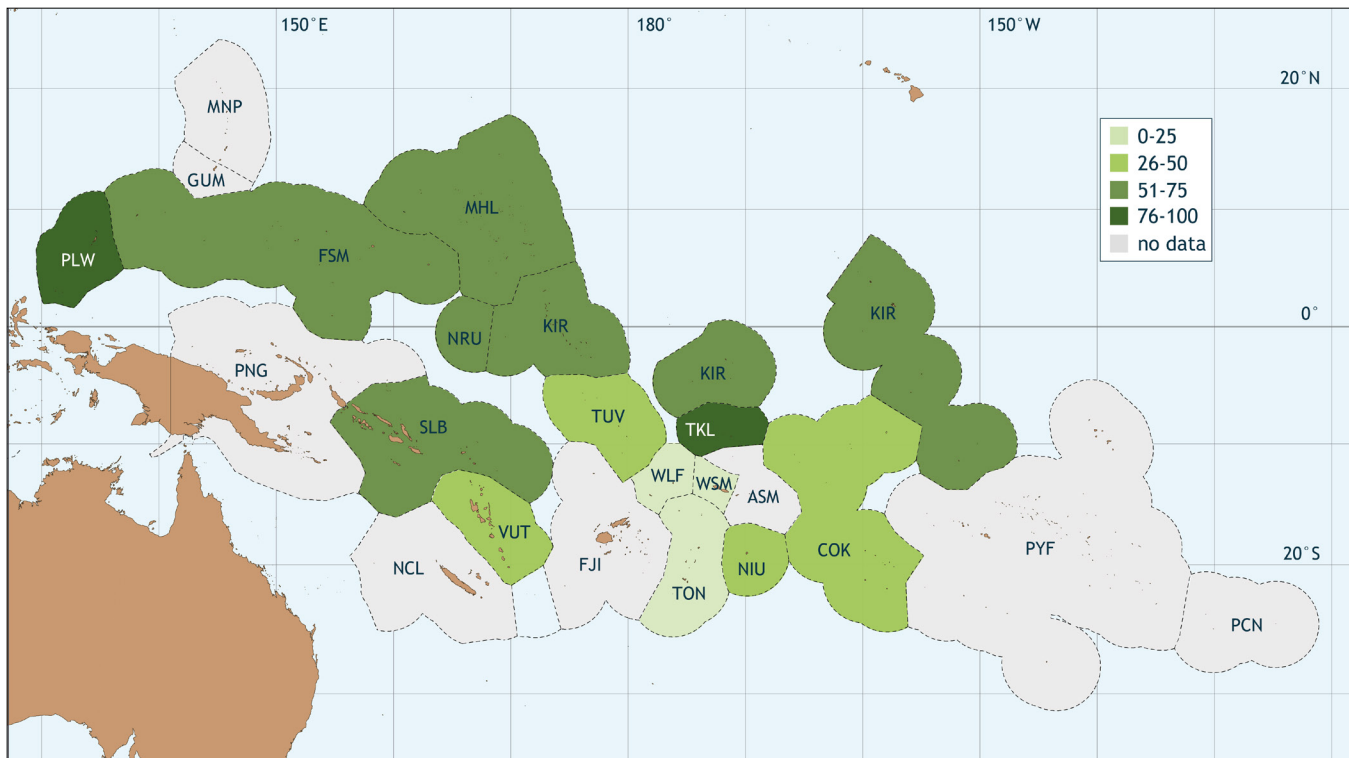


Figure 1. Aquatic food consumption estimates in the Pacific Island countries and territories.

¹ Aquatic food consumption refers to aquatic food available for consumption because the survey underlying this brief collected information on whole food acquisition quantity, which was converted into estimates of edible quantity available for consumption using refuse factors from the Pacific Nutrient Database.



Image: Traditional fish dish cooked on Uripiv small island, Malekula, Vanuatu. Eleanor McNeill, 2022.

RESULTS

Aquatic food consumption

At the regional level and based on the 14 countries of PFCD, Pacific Islanders consume, on average, 43 kg of aquatic food per person per year (Table 1). At the subregional level, Micronesians, on average, eat the most aquatic food and nearly three times that of Polynesians - consumption in Polynesia is close to the global average of 19 kg per person per year. On average, people in Tokelau eat the most aquatic food, consuming 83 kg per capita per year, and similarly high consumption rates are observed in Palau, Kiribati, and FSM. At the other end of the spectrum, populations of the Wallis and Futuna, Tonga, Samoa, Vanuatu, Cook Islands, and Niue, consume, on average, the smallest quantity of aquatic food.

During the reference period of the surveys of PFCD, aquatic food is consumed by 92% of Pacific people (Table 1). Access to aquatic food is highest in Melanesia and Micronesia, and lowest in Polynesia, with 94%, 94%, and 84%, of those respective populations consuming. More than 90% of people in Solomon Islands, Tokelau, FSM, Kiribati, Samoa, and Nauru, consume aquatic food, while just over half of people in Wallis and Futuna do. High rates of access to aquatic food does not necessarily translate into high rates of consumption, which can be seen in Samoa, Niue, and Vanuatu, where almost all people consume but, on average, in low quantity relative to other PICTs.

Aquatic food consumption composition

In the Pacific region, reef fish account for one-third of total aquatic food consumption (Table 1). Reef fish constitute almost half of aquatic food consumption in Micronesia, almost one-third in Melanesia, and over one-fifth in Polynesia. Fresh fish, including reef fish, pelagic fish, and unclassified fresh fish (including, reef, pelagic, demersal, freshwater, and other fish), make up 70% of aquatic food consumption in the Pacific region, while they account for less than two-thirds of aquatic food consumption in Samoa, Niue, Vanuatu, Tonga, and Tuvalu. Reef fish make up more than half of aquatic food consumption in the Marshall Islands, Palau, and Tonga, while pelagic fish make up more than three-quarters of consumption in Nauru, and one-third of consumption in Tuvalu and Cook Islands.

Shellfish account for a little less than one-fifth of aquatic food consumption in the Pacific region, and one-quarter in the Melanesian countries of Solomon Islands and Vanuatu. Shares of shellfish in total aquatic food consumption are also high in Tuvalu, where it makes up more than a quarter of consumption, and Niue and Tonga where it accounts for almost one-fifth of consumption. Conversely, shellfish account for negligible shares of total aquatic food consumption in Nauru, and less than 10% of consumption six of the 14 PICTs of this study. Canned fish account for 11% of aquatic food consumption in the Pacific region, and more than one-quarter in Polynesia, which is driven by high consumption rates in Samoa where it makes up 40% of total aquatic food consumption. More than one-fifth of aquatic food consumption in Niue and FSM is canned fish, while less than 10% of consumption in eight of the 14 PICTs of this study is attributable to canned fish.

The high share of 'fish, other' in total aquatic food consumption is mostly explained by survey respondents reporting the consumption of fresh fish, without further detail. This inhibits food and nutrition policy as aquatic food consumption cannot be attributed to a finfish category, whether it be reef, pelagic, freshwater, or farmed fish. The Pacific Statistics Methods Board, FAO, and the World Bank recommend the collection of food consumption data using a method where the respondent recalls consumption against a predefined list of food items, which will alleviate this issue. The surveys of Kiribati, Marshall Islands, Tonga, and Vanuatu, adopted the recommended recall method and, as can be seen in Table 1, they have relatively low shares of 'fish, other'.

² Note that the surveys do not include the most populated countries of PNG and Fiji, and the territories of American Samoa, French Polynesia, Guam, Northern Mariana Islands, New Caledonia, and Pitcairn Islands, which, based on previous fish consumption estimates such as those of Bell et al. (2009), are likely to over inflate sub-regional averages.

Table 1: Estimates of aquatic food consumption rates, average quantity consumed (standard error in parenthesis), composition by aquatic food class, and source, for the Pacific region, and sub-populations, including: Cook Islands (COK), Federated States of Micronesia (FSM), Kiribati (KIR), Niue (NIU), Nauru (NRU), Palau (PLW), Marshall Islands (MHL), Samoa (WSM), Solomon Islands (SLB), Tokelau (TKL), Tonga (TON), Vanuatu (VUT), and Wallis and Futuna (WLF).

Population (HIES Year)	Households consuming aquatic food (%)	Aquatic food consumption		Composition of aquatic food consumption								Source of aquatic food consumption		
		Edible quantity available for consumption (kg/cap/yr)	Edible quantity available for consumption (g/cap/day)	Reef fish (%)	Pelagic fish (%)	Fish, other (%)	Canned fish (%)	Shellfish (%)	Aquatic food, other (%)	Cash purchases (%)	Home production (%)	In-kind receipts (%)		
Pacific region	92.0%	43.3 (0.4)	118.5 (1.1)	33.5%	14.3%	22.0%	10.8%	18.3%	1.1%	37.3%	46.5%	16.1%		
Melanesia	94.2%	43.6 (0.6)	119.5 (1.7)	29.1%	11.5%	26.9%	7.7%	24.1%	0.7%	29.1%	60.4%	10.5%		
Micronesia	93.6%	63.8 (1)	174.7 (2.9)	46.7%	21.6%	9.8%	11.0%	8.9%	2.0%	45.0%	31.6%	23.4%		
Polynesia	84.1%	22.4 (0.4)	61.3 (1.2)	21.6%	10.6%	27.7%	27.8%	11.4%	0.9%	54.9%	22.0%	23.1%		
COK (2015)	69.3%	26.6 (2.1)	72.9 (5.9)	11.5%	30.0%	38.3%	7.1%	11.6%	1.6%	44.7%	30.2%	25.1%		
FSM (2013)	97.5%	70.9 (1.7)	194.3 (4.6)	35.3%	19.2%	13.9%	21.9%	6.3%	3.5%	55.5%	21.1%	23.4%		
KIR (2019)	97.4%	63.1 (1.3)	172.8 (3.6)	39.7%	27.4%	11.0%	4.3%	15.6%	2.0%	40.9%	39.2%	19.9%		
NIU (2015)	89.1%	26.9 (3.2)	73.6 (8.6)	4.1%	14.2%	37.8%	25.6%	18.4%	0.0%	52.7%	17.3%	30.0%		
NRU (2012)	91.4%	54.1 (3.2)	148.2 (8.8)	18.6%	78.0%	0.4%	2.0%	0.8%	0.4%	52.2%	45.9%	1.9%		
PLW (2014)	83.4%	78.8 (6)	215.8 (16.4)	66.0%	9.3%	14.2%	5.0%	4.1%	1.5%	39.3%	20.1%	40.5%		
MHL (2019)	88.6%	53.6 (2.9)	146.9 (8.1)	78.3%	9.6%	0.4%	8.2%	3.5%	0.0%	34.5%	42.6%	22.8%		
WSM (2018)	92.1%	22.4 (0.7)	61.4 (1.9)	9.3%	3.2%	40.8%	39.5%	6.5%	0.6%	57.9%	22.0%	20.1%		
SLB (2012)	97.9%	52.0 (1)	142.6 (2.7)	25.9%	10.9%	32.9%	5.2%	24.3%	0.8%	23.6%	66.7%	9.7%		
TKL (2015)	97.3%	82.6 (8.2)	226.3 (22.5)	14.1%	21.8%	37.9%	15.0%	11.2%	0.0%	21.6%	34.0%	44.4%		
TON (2021)	79.4%	19.2 (0.5)	52.7 (1.5)	50.0%	14.4%	1.1%	15.6%	17.5%	1.5%	64.0%	10.8%	25.2%		
TUV (2015)	86.9%	42.8 (2.6)	117.3 (7.2)	25.2%	38.8%	1.5%	6.3%	27.5%	0.7%	34.3%	41.3%	24.4%		
VUT (2019)	87.8%	25.7 (0.6)	70.4 (1.6)	43.2%	14.0%	0.8%	18.8%	23.2%	0.0%	47.3%	39.7%	12.9%		
WLF (2019)	54.4%	16.5 (1.1)	45.2 (2.9)	33.3%	4.6%	47.3%	5.2%	8.9%	0.8%	22.7%	37.7%	39.6%		



Image: Local fish for sale, Papeete, French Polynesia. CPS (Angèle Armando).

Source of aquatic food consumption

Own account production is the source for almost half of total aquatic food consumption in the Pacific region (Table 1). In Melanesia, it supplies nearly two-thirds of aquatic food consumption, while in Micronesia and Polynesia, it supplies one-third and one-fifth, respectively. More than one-third of aquatic food consumption is sourced from home production in eight of the 14 PICTs of this study, while it only supplies 11% of consumption in Tonga.

Cash purchases are the source for one-third of aquatic food consumption in the Pacific, more than one-half in Polynesia, and a little less than one-half in Micronesia. More than half of aquatic food consumption is sourced from cash purchases in Tonga, while it is the source for two-thirds of consumption, and Samoa, FSM, Niue, and Nauru.

In-kind receipts of aquatic food account for the remaining almost one-fifth of aquatic food consumption in the Pacific region, with rates being higher in Micronesia and Polynesia, supplying almost one-quarter of consumption. In-kind receipts are the source for more than one-third of aquatic food consumption in Tokelau, Palau, and Wallis and Futuna.

Aquatic food consumption away from home, such as in restaurants or at cultural events, is not included in these results because survey methods do not allow for the attribution of away from home food consumption to specific food groups. This is a further constraint to the use of these data in food and nutrition policy.

The Pacific Nutrient Database (PNDB)

The PNDB is an essential instrument in converting whole food reported acquisition in household surveys into estimates of edible food, macro-and-

micronutrients, and dietary energy available for consumption. This analysis found the composition of aquatic food items in PNDB does not match the composition of consumption, which undermine the consumption estimates presented herein - reef fish, in particular, are underrepresented in PNDB.

CONCLUSION

Consumption of aquatic food is not uniform across the region. In some atoll nations rates are among the highest in the world, while in other PICTs, rates of consumption are comparable to the global average. There are high rates of participation in aquatic food consumption, although this does not necessarily translate into high quantity of consumption. Fresh fish, particularly reef fish, constitute most of aquatic food consumption, and own account production supplies majority of aquatic food consumed.

Continued investment in improved estimates of national per capita consumption is critical to underpinning evidence-based policy development. PICTs are recommended to adopt the recall method to collect food consumption data. Other recommendations include updating of the Pacific Nutrient Database to include aquatic food items that better represent consumption, including more data on the nutrient composition of reef fish, and further research in survey methods to improve understanding of food consumption away from home.

Within PICTs, better understanding of consumption with respect to income levels, urban/rural households, and the nature of the livelihoods households engage in, will better inform targeted interventions in food environments and dietary patterns.

SOURCES

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ABOUT

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