

What is the nutritional value of reef fish and mud crabs?

Thanks to long-term efforts made by the Pacific Community, the Food and Agriculture Organization of the United Nations and the University of Wollongong, a Pacific Nutrient Database (PNDB) and its accompanying user guide were made public in December 2020. The PNDB gives access to the nutritional values of the main foods consumed in the Pacific Islands region, including marine foods that are essential for food and nutrition security of coastal communities. The PNDB is designed to facilitate the use of data, primarily derived from household income and expenditure surveys, to conduct poverty, nutrition and food security-oriented analysis in the Pacific region. Through its concordance with international classification and food groups, the database facilitates rapid and comparable consumption-oriented analysis, which will guide evidence-driven policy to support vulnerable populations, such as those who live in poverty and/or are food insecure.

At a national and regional level, the PNDB is an instrument that will support the establishment of a consumption baseline to work towards alleviating the triple burden of malnutrition – the coexistence of undernourishment, nutrient deficiencies and obesity – that is hampering the development of Pacific people and their economies. It will also support the derivation of an evidence base to alleviate poverty, achieve food security and improve nutrition.

In the context of Pacific food systems, which fisheries are central to, the PNDB includes 55 different marine-based foods, belonging to four main categories:

- 1) Fresh, chilled or frozen fish (13 species or groups of species)
- 2) Fresh, chilled, frozen seafood, such as crustaceans, molluscs and other shellfish, and sea snails (20 species or groups of species)
- 3) Dried, salted, pickled or smoked fish and seafood (3 groups of products)
- 4) Other preserved or processed fish and seafood-based products, such as canned fish, caviar, roe and fish pie (19 groups of products)

For each of these marine-based foods, the PNDB provides edible portion conversion factors that enable, for example, the conversion of whole fish into a quantity that is an average edible amount. PNDB then provides conversion factors for this 100 g of edible fish and other foods to allow for the estimation of dietary energy consumption (kcal) and access to nutrients. The PNDB includes information access to 22 macronutrients and micronutrients, including iron, calcium and vitamins A, B, C and E for these 55 marine-based foods (and 800+ other food items). Table 1 gives an example of the information available in the PNDB.

Finally, the PNDB includes pre-assigned food classifications, such as Pacific Guidelines for a Healthy Living,¹ the FAO/WHO Global Individual Food consumption Data Tool,² FAOSTAT,³ the Household Dietary Diversity Score,⁴ and the United Nations Harmonised System.⁵ All of these allow the production of statistics on the consumption of fish, and other foods in the database, by these food classifications, which aim to inform the improvement of Pacific Island diets and to answer questions such as “What is the nutritional value of coastal fisheries?”

The PNDB User Guide can be download at:
<http://www.fao.org/publications/card/en/c/CB0267EN/>
and the PNDB dataset is available here:
<https://microdata.pacificdata.org/index.php/catalog/755>

The PNDB content can be explored and downloaded via the user-friendly PDH.stat Data Explorer. Various tools also allow users to connect to the dataset via Excel, Stata, R, Python and PowerBI. See Pacific Data Hub User Guide.

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¹ <http://purl.org/spc/digilib/doc/sgg28>

² <http://www.fao.org/gift-individual-food-consumption/en/>

³ <http://www.fao.org/faostat>

⁴ <http://www.fao.org/nutrition/assessment/tools/household-dietary-diversity/en>

⁵ <https://unstats.un.org/unsd/tradekb/Knowledgebase/50097/Trade-Statistics-Coding-Systems>

Table 1. Nutritional values of 25 marine-based foods.

	Edible portion (%)	Inedible portion (%)	Water (g)	Energy (kcal)	Energy (kJ)	Protein (g)	Total fat (g)	CHO available (g)	TDF (g)	Na (mg)	Mg (mg)	K (mg)	Ca (mg)	Fe (mg)	Z (mg)	Retinol (µg)	β-carotene equiv. (µg)	Tot. vitamin A equiv. (µg)	Thiamin (mg)	Riboflavin (mg)	Niacin (mg)	Vitamin B12 (µg)	Vitamin C (mg)	Vitamin E (mg)	Cholesterol (mg)		
Fresh, chilled or frozen fish																											
Spanish mackerel, "Walu"	67	33	75.00	112.00	470.00	20.90	3.10	0.000	0.000	137.00	32.00	158.00	7.00	0.50	0.60	17.00	0.00	17.00	0.760	0.080	2.700	0.550	0.00	0.40	41.00		
Sardine	65	35	72.90	105.64	442.00	19.70	2.90	0.000	0.000	665.00	46.00	352.00	725.00	3.95	3.10	106.00	0.00	106.00	0.019	0.073	7.390	0.500	0.00	0.46	129.00		
Snapper	85	15	75.30	110.66	466.31	20.13	3.20	0.340	0.000	78.00	34.00	502.00	18.00	0.58	0.53	31.00	0.00	31.00	0.110	0.020	6.980	0.700	0.20	0.26	44.00		
Sweetlip, painted	43	57	78.00	84.00	352.00	19.80	0.20	0.500	0.000	84.00	37.00	339.00	39.00	0.40	0.60	29.00	0.00	29.00	0.010	0.090	3.100	2.110	0.00	0.70	47.00		
Tuna, albacore	58	42	68.00	150.00	628.00	26.40	4.70	0.300	0.000	35.00	41.00	431.00	9.00	1.00	0.50	20.00	0.00	20.00	0.050	0.030	2.100	0.700	0.30	0.50	53.00		
Tuna, skipjack	58	42	64.70	178.58	748.72	25.63	8.20	0.570	0.000	31.00	36.00	381.00	3.00	1.70	0.53	78.00	0.00	78.00	0.050	0.030	6.800	0.700	0.30	0.26	53.00		
Tuna, yellowfin, bigeye	70	30	74.03	109.00	456.05	24.40	0.49	0.000	0.000	45.00	35.00	441.00	4.00	0.77	0.37	18.00	0.00	18.00	0.118	0.115	18.475	2.080	0.00	0.24	39.00		
Fish, reef, not further specified	89	11	76.00	110.00	458.00	19.50	3.30	0.300	0.000	73.00	40.00	370.00	19.00	0.70	0.60	31.00	0.00	31.00	0.060	0.070	3.000	2.300	0.70	0.80	51.00		
Fish, pelagic/ocean, not further specified	79	21	70.89	150.80	631.71	21.02	7.17	#N/A	0.000	83.03	33.28	401.10	21.10	1.09	0.74	45.07	0.00	51.68	0.076	0.108	6.473	1.155	0.27	0.49	53.76		
Fresh, chilled, frozen seafood e.g. crustaceans, molluscs and other shellfish, sea snails																											
Beche de mer/sea cucumber	80	20	83.00	53.00	221.00	12.80	0.10	0.000	0.000	716.00	119.00	37.00	87.00	1.20	0.20	0.00	0.00	0.00	0.000	0.030	0.000	0.000	0.000	2.00	0.00	0.00	
Crab, coconut	N/A	N/A	N/A	97.00	405.85	22.00	0.90	0.000	0.000	395.00	40.00	310.00	49.00	0.20	3.40	N/A	N/A	2.00	0.000	0.060	2.100	3.200	0.00	0.00	1.70	N/A	
Crab, mud	20	80	77.70	97.50	407.94	19.95	1.90	0.000	0.000	372.00	40.00	325.50	116.00	1.40	4.30	199.00	232.00	110.00	0.025	0.115	2.750	5.100	2.50	2.00	N/A		
Octopus	79	21	81.00	73.00	306.00	16.40	0.70	0.100	0.000	280.00	29.00	286.00	16.00	0.60	1.60	43.00	0.00	43.00	0.030	0.090	2.200	19.000	0.00	0.70	90.00		
Seaweed	100	0	93.50	9.00	36.50	0.60	0.30	0.000	1.900	810.00	51.50	163.00	56.00	8.00	0.00	0.00	593.50	49.50	0.000	0.000	0.000	0.000	0.00	0.30	0.00		
Sicci-shell, meat	N/A	N/A	71.00	116.00	486.00	26.60	0.90	0.000	0.000	714.00	66.00	116.00	2.00	2.30	1.50	0.00	107.00	9.00	0.000	0.000	0.700	0.000	0.00	0.00	0.00		
Trochus	N/A	N/A	N/A	81.00	338.90	14.70	2.40	0.000	0.000	714.00	66.00	116.00	2.00	2.30	1.50	N/A	N/A	11.00	0.000	0.100	1.400	57.050	0.00	0.40	N/A		
Squid, not further specified	67	33	79.25	85.41	360.16	17.95	1.45	0.095	0.000	290.00	47.50	206.00	13.40	0.95	1.16	0.00	0.00	0.00	0.075	0.040	3.350	1.250	2.50	1.73	186.00		
Prawn/shrimp, not further specified	75	25	76.13	92.24	390.54	20.44	1.17	0.000	0.000	249.00	44.00	233.50	89.00	1.56	1.31	27.00	2.50	27.42	0.015	0.045	6.555	1.450	1.00	1.81	150.50		
Crayfish/lobster, not further specified	68	32	74.87	94.86	398.60	20.00	1.03	0.908	0.000	133.00	40.98	296.75	59.43	0.97	4.53	7.50	29.50	10.46	0.059	0.067	3.771	2.308	1.75	0.97	63.25		
Dried, salted, pickled or smoked fish and seafood																											
Fish, dried, salted	100	0	43.00	185.00	776.00	42.00	1.50	0.400	0.000	1730.00	60.00	47.00	174.00	1.70	1.20	0.00	0.00	0.00	0.060	0.310	4.600	12.000	0.00	2.40	90.00		
Fish, smoked	100	0	66.00	152.00	634.00	27.20	3.70	2.100	0.000	593.00	40.00	368.00	2.00	0.00	0.60	28.00	0.00	28.00	0.060	0.000	8.300	0.610	0.00	0.40	98.00		
Other preserved or processed fish and seafood-based products																											
Fish finger, crumbed, purchased frozen	100	0	55.00	224.00	938.00	11.60	11.30	19.100	1.000	320.00	25.00	219.00	35.00	1.00	0.50	410.00	0.00	410.00	0.070	0.050	1.500	0.800	0.00	1.50	31.00		
Sardines, canned, not further specified	100	0	64.07	192.52	805.30	20.37	12.30	0.167	0.100	489.33	52.00	346.67	460.33	3.20	2.27	23.67	0.00	23.67	0.010	0.263	9.033	9.533	0.00	2.13	91.33		
Tuna, canned in brine	79	21	75.00	109.00	457.00	22.10	2.20	0.000	0.000	390.00	30.00	272.00	8.00	1.00	0.90	15.00	0.00	15.00	0.000	0.100	7.400	3.800	0.00	0.60	43.00		
Tuna, canned in oil	80	20	57.00	290.00	1212.00	20.80	23.20	0.000	0.000	417.00	27.00	270.00	5.00	0.60	0.80	19.00	0.00	19.00	0.000	0.090	8.100	4.800	0.00	0.60	33.00		