South Pacific Commission



Community Health Services SOUTH PACIFIC FOODS

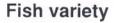
Leaflet 1992 17

Fish

Food for life

Fish is a major source of food in the Pacific. Combined with the traditional staples such as root crops, breadfruit, bananas, and green leaves, fish provides an appetizing, delicious and nutritious meal for the whole family.

In the past, fish was available mainly to those communities living near the sea. Today, with modern methods of fishing, transport, storage and preservation, this popular food and its by-products are eaten in most parts of the Pacific. Fishery activities provide a major source of income to many Pacific Islanders.



Fish belong to the group of marine animals that live in the sea, on coastal reefs and shores, and in lagoons and rivers. There are two basic types, fresh-water fish and sea fish.

The Pacific Ocean contains a dazzling variety of fish, with many variations in colour, shape, size and habitat. Although many different kinds of fish live on Pacific Island reefs, they are not usually present in large numbers. If too many people go fishing too often on a particular reef, fish will soon become scarce.



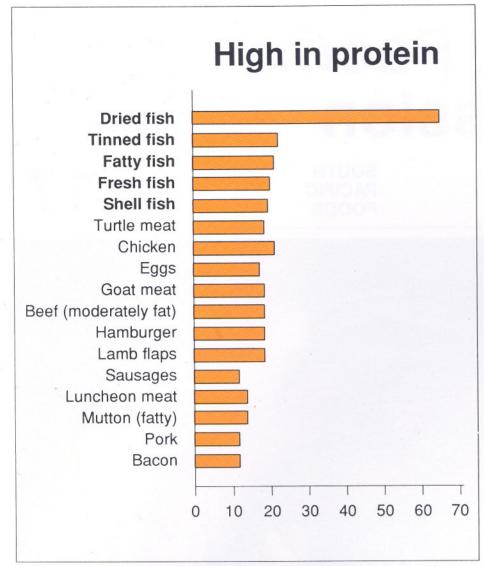


A popular activity

Fishing is fun, a means of survival, and a traditional part of Pacific Island life. In the early days, fish were caught by many different traditional methods, some of which (such as fence traps built on reefs or out from the shore-line to catch migrating coastal fish) are still in use. Modern technology has changed fishing practices by the introduction of monofilament fishing line and gillnets, boat engines and devices to attract fish. Methods commonly used by Pacific Island fishermen today include spearfishing, bottom and mid-water handlining, gill-netting, trolling and scooping of flying-fish.

But by far the largest fishing activity in the Pacific today is the harvesting of tuna by ships using longlines that can stretch up to 30 miles (50 kilometres), poles and lines, and purse-seines, which are large nets that surround and enclose the fish. Many of the fish caught by this fishing industry are exported to countries outside the Pacific.

Whatever the methods used, the art of catching fish will depend on the skill and experience of the fisherman. For more detailed information, contact your nearest fisheries officer



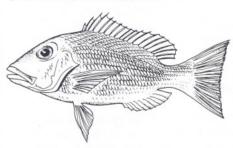
Protein content of fish per average serving sizes (3—4 oz or 100 g) compared with other foods. (Half a serving of fish will provide more than half the daily requirement for children 1 - 10 years of age.)

content, we can see that fish is an excellent body-building food both for children and for those who want to lose weight. Compared to sausages, mutton, lamb flaps, beef, pork and bacon, fish is generally low in fat.

Fish selection

Fresh fish is best. Fish bought from the local fisherman or market can sometimes be a few days old or perhaps may not have been chilled properly on ice, so it's important to know what to look for.

Generally the freshness of fish can be judged by its appearance and smell. First, make sure that the eyes are moist, bright and full, and that the skin is shiny and has the right colour for that type of fish. The flesh must be firm, not soft and slimy, and when pressed with a finger it should bounce back. The gills should be bright red in colour, free from slime and have no strong smell. It is always wise to clean the fish and remove the stomach and gills soon after catching. This will help the fish to stay fresh for some time. Keep the fish in a cool place, preferably a refrigerator.



A quality food

Fish provides a very good balance of nutrients for the family's meals. It is one of the best body-building foods. The **protein** in fish is of high quality and is easily used by the body. It is an excellent food source for people of all ages, particularly babies and young children.

The bar chart shows that fish is a very good source of protein. Compared to mutton, pork, bacon and sausages, fish is the best source of body-building food.

Oily fish, such as mackerel, are good sources of Vitamin A and Vitamin D. Vitamin A is needed for proper growth, healthy eyes and skin, and protection from infections. Vitamin D assists in normal bone growth.

When small fish are cooked, the bones become soft and can also be eaten. They are very good sources of **calcium**. Calcium is needed by the body to make strong bones and teeth. Useful amounts of other minerals, such as **iodine** and **fluoride**, not normally found in meat, are found in fish. Most of these minerals help the body to function properly. Iodine prevents goitre, a disease of the thyroid glands, and fluoride helps prevent tooth decay.

Most fish contain very low amounts of **fats** and **oils**. The oil in fish is special. It is mostly of a type that can keep the blood vessels in the body healthy. This helps prevent high blood pressure and heart attacks. From the bar chart on fat

A common type of fish poisoning in tropical waters is called *ciguatera*. This type of fish poisoning can make you very sick for several weeks. At different times of the year, some reef fish may be poisonous in certain areas. Some varieties may be poisonous in one area but not in another. Find out from your local fishermen or from your agriculture or fisheries department what sort of fish to avoid.

Scombroid fish poisoning is also quite common. It results in itchiness and rashes. Stale or spoilt tuna, mahi-mahi and mackerel are blamed for this. When in doubt about the quality of the fish, contact the local fishery officer or public health inspector in your area.

Fish salad

Four servings:

2 cups flaked fish, canned or freshly cooked

1/2 cup mayonnaise or salad dressing

1/2 cup celery, diced (optional)

1/2 cup cooked peas or beans 2 tablespoons chopped onion

3 hard-boiled eggs 6-8 lettuce leaves

Combine all ingredients except the eggs and lettuce, being careful not to break the fish into too small pieces.

Serve on lettuce leaves.

Garnish with sliced eggs.

Raw fish salad (Tahitian style)

Six servings:

4—5 slices fresh fish fillet (approximately 1 lb 5 oz or 600 grams)

6 lemons or limes

1 medium onion

2 cloves garlic

1 small piece ginger

3 hard-boiled eggs

2 medium-sized tomatoes

3 spring onions

2 medium-sized carrots

1 cucumber

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1/2 cup coconut cream

Salt and pepper

- Slice fish and place in a
- Squeeze the limes or lemons and pour juice over chopped fish.
- Slice onion thinly, crush garlic and ginger, and mix with fish.
- Leave mixture to marinate for 15 to 20 minutes.
- Cut eggs in halves along their length, and tomatoes into quarters.
- Soak the spring onions in water with a little lemon juice added to it.
- Prepare carrots and slice thinly, or use a grater if you
- prefer. Peel cucumber and cut in half. Remove seeds. Cut into thin slices.
- After 15—20 minutes, strain the fish quickly to drain off the excess lemon juice. Add vegetables and coconut cream, salt and pepper to taste, and decorate top with tomato and hard-boiled eggs.

Curried fish with coconut cream

Four servings:

1 onion

2 tablespoons margarine or oil 3 tablespoons curry powder

Pepper

2 cups fish (cubed)

2 cups green pawpaw (peeled and cubed)

1 cup undiluted coconut cream

Cut up onions and fry in margarine or oil.

Mix together salt, pepper and

curry powder.

Add green pawpaw to the curry mixture. Mix thoroughly.

Add to onions in pan and stir fry until just soft.

Add fish and continue to stir fry for about 2 minutes.

Add coconut cream and simmer over low heat for about 20 minutes, taking care not to overcook the coconut cream.

Serve hot with boiled root crops or wholemeal rice.

Baked banana fish

Two servings:

Two large cooking bananas 1 cup coconut cream

1 tomato, chopped

2 pieces fish fillet (1/2 lb or 240 grams)

1 small onion, chopped Salt to taste

Chillies or shake of pepper (optional)

Softened banana leaf

Peel and slice cooking bananas lengthwise. Place on softened banana leaf.

Add fish and rest of ingre-

Wrap everything together and bake in an earth oven for an hour.

Note: Half-ripe cooking bananas give a better flavour.

Fresh fish in sova sauce (Sashimi)

Four servings:

4 slices of fish fillet (1 lb or 450 grams)

1/2 cup soya sauce

1/2 teaspoon salt

1 clove garlic

1 onion 2 lemons

1 small piece ginger

2 tablespoons grated radish (optional)

Clean fish and slice thinly.

2. Arrange around a serving dish.

3. Mix rest of ingredients in a small bowl and place in centre of serving dish.

Using your fingers or cocktail sticks, pick a piece of fish, dip in sauce and eat.

Note: Deep-water fish, for example walu or yellowfin tuna, is best for this.

Fish and yam pie

Four servings:

1 lb 2 oz or 500 grams Oil 3 onions, skinned and sliced 2 green peppers, seeded 1½ lbs.or 700 grams fish fillets (canned fish may be substituted) 1 lb or 450 grams tomatoes, skinned and sliced 1 lemon

- Peel and slice the yams and cook immediately in boiling water until just tender; drain.
- Heat oil and add onions. saute until clear, then add the sliced peppers and cook 2 minutes more.
- Cut fish into small squares.
- Lightly oil a shallow dish. Place half the yams in a layer on the bottom, cover with the fish and top with the onion and pepper mixture, seasoning well with salt and pepper. Finish with the remaining yams and the tomatoes. Brush top with oil and sprinkle with lemon juice.
- Bake in the centre of the oven for 25-30 minutes.

Fish in taro leaves

Six servings:

1 medium fresh fish

24 tender young taro leaves

2 coconuts

3 cups water

2 small chillies

1 small onion

6 cocktail sticks or sharpened fronds from coconut leaf (6 inches long)

Grate coconuts. Add water. squeeze out the cream. Strain and salt.

Scale and clean fish 2. thoroughly.

Cook and remove flesh from bones.

Chop onion and chilli finely.

Lay out 3-4 taro leaves. Make a hollow and put in fish, onions, chillies and coconut cream. Parcel neatly, using coconut fronds or cocktail sticks.

Place in a pot. Continue until 6. all ingredients are used.

Cover parcels with coconut cream and steam until cooked.

Serve with root crops.

Savoury fish hash

Four servings:

2 cups cooked flaked fish or canned fish

1 cup cooked diced taro or sweet potatoes

1 hard-boiled egg, chopped (optional)

2 tablespoons chopped green pepper

2 tablespoons oil

1/2 cup milk

1 teaspoon Worcestershire sauce

Combine all ingredients except the oil, and mix until blended.

Heal oil in a large fryingpan; add the fish mixture and flatten out.

Cover and cook over heat until bottom is brown.

Fold over and serve.



Four servings:

2 cups cooked flaked fish or canned fish

1 egg

1/2 cup milk

2 teaspoons lemon juice

tablespoon melted butter

3 tablespoons minced onions

2 tablespoons chopped green pepper

Combine all ingredients and mix until thoroughly blended.

Put mixture into a buttered baking dish and bake i400°F (200°C) oven for 25 minutes

Fish stew

One serving:

1/2 cup water 1 small piece fish fillet

2 tablespoons mixed vegetables, fresh or frozen

1 tablespoon coconut cream

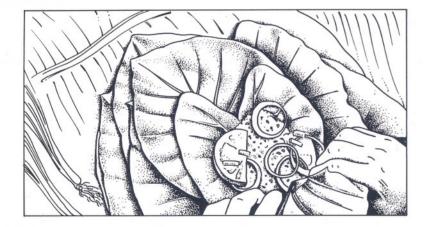
Prepare the vegetables and put in saucepan with just enough water to cover them.

Clean and cut the fish into even pieces and add to the vegetables. Cook over the fire.

Add coconut cream and simmer until the fish is cooked.

Mash everything together before serving.

Note: A nutritious meal for infants.



This leaflet is the seventeenth of a series devoted to the uses of local Pacific foods. Other leaflets available in this series are:

Leaflet 1 - Taro

Leaflet 2 - Pawpaw Leaflet 3 - Mango

Leaflet 4 - Guava

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Leaflet 14 - Yam

Leaflet 15 - Nuts and seeds Leaflet 18 - Seafoods

Leaflet 16 - Legumes

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South Pacific Commission CIP data

Fish: food for life (South Pacific foods leaflet; 17)

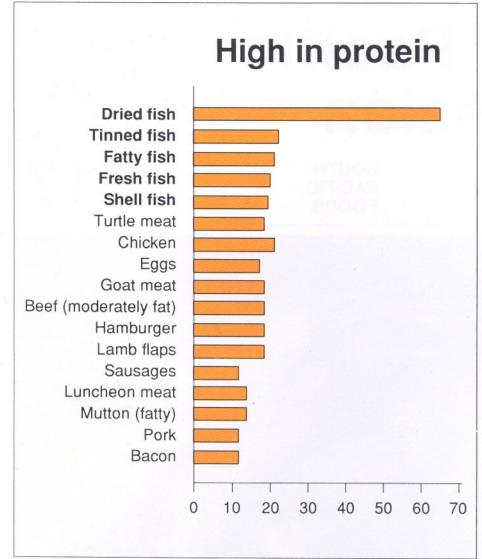
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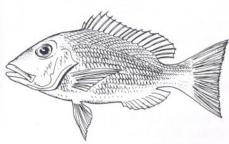
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Fish selection

Fresh fish is best. Fish bought from the local fisherman or market can sometimes be a few days old or perhaps may not have been chilled properly on ice, so it's important to know what to look for.

Generally the freshness of fish can be judged by its appearance and smell. First, make sure that the eyes are moist, bright and full, and that the skin is shiny and has the right colour for that type of fish. The flesh must be firm, not soft and slimy, and when pressed with a finger it should bounce back. The gills should be bright red in colour, free from slime and have no strong smell. It is always wise to clean the fish and remove the stomach and gills soon after catching. This will help the fish to stay fresh for some time. Keep the fish in a cool place, preferably a refrigerator.



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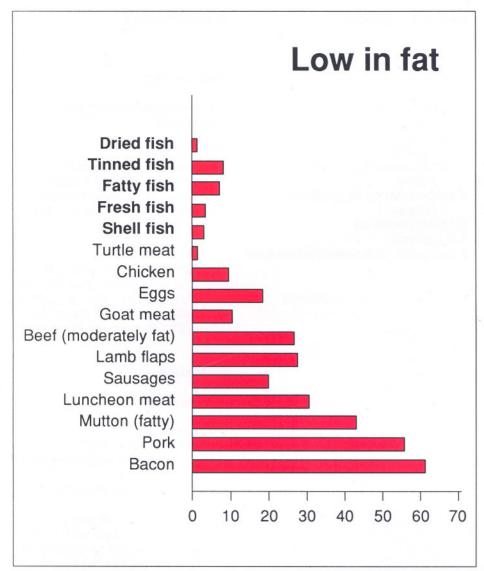
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Fat content of fish per average serving (3-4 oz or 100 g) compared with other meat.

Preparation

Fish preparation always requires plenty of fresh clean water, a scraper or instrument to scale the fish (for those with scales), a sharp knife and a clean surface or board. It is always wise to wash fish in plenty of fresh clean water before cooking. Make sure the scales, gills and all the organs inside the stomach are removed.

Because fish can spoil very quickly, care must be taken during storage. If the fish is not to be used straight away, keep it in a cold place (refrigerator) or in ice until required. Make sure the fish is covered and protected from flies.

When fish is stored in a refrigerator, make sure the temperature is kept below 40°F or 4°C (in a chiller). Keep fish away from other foods, to avoid contamination. If buying frozen fish, make sure it is kept frozen until it is needed. Once soft or thawed out, do not refreeze it again; use it straight away.

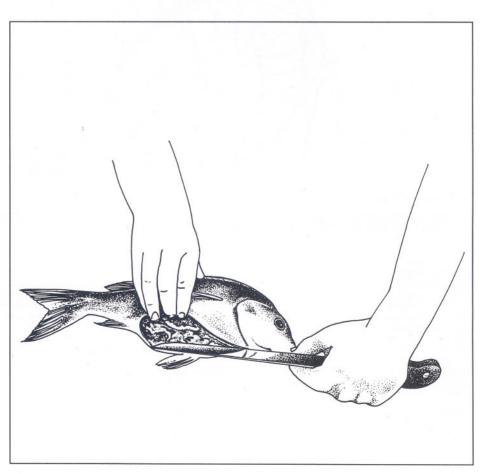
Preservation

Drying is an important method of preserving fish. First, clean the fish thoroughly by removing the insides and the scales. Small fish can be left whole. Medium-sized or large fish should be split in half lengthwise through the stomach and head. The fish should be treated with salt before they are dried. They are two ways of doing this:

Method 1: Fill a basin with seawater and then add more salt until the fish start to float in the water. Leave the cleaned fish in the salt water for 2—6 hours, depending how long you want to store them.

Method 2: Place fish on a clean wooden board. Using a clean, sharp knife, make shallow cuts in the flesh so that the salt can penetrate it. Add three parts salt to one part of water. Mix until nearly all the salt has dissolved. Add the fish, making sure they are covered and kept under the salt and water mixture. Leave for 1—2 hours, depending on the amount of salt used. Then wash in fresh water.

The fish should be put out to dry in a sunny, windy spot. Either lay them on a wire mesh or hang them up. Drying will take 3—5 days.



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Fish can also be dried by smoking after soaking in salt water. Thread them on a wire or a bamboo and hang them about 3 feet (1 metre) above the fire. The fire should be kept low so that the fish dries slowly but does not cook. There should be smoke, but no flame. After drying, store in clean, dry plastic containers or tightly-wrapped dry banana leaves till required.

Cooking

Certain types of fish (for example tuna, walu and mullet) can be marinated and eaten raw. Raw fish is a delicacy and many Pacific cultures have their own way of preparing it (see Tahitian salad and Sashimi recipes). Always use very fresh fish.

Fish should be cooked as quickly and for as short a time as possible. This will help keep the flesh of the fish moist, firm and tasty. Several methods are used to make them tasty and appetizing.

Boiling, baking and grilling are common methods of cooking fish in the Pacific. Fish can be boiled in water alone or together with coconut cream and green leaves. Lemon juice can be sprinkled on the fish for flavour and taste when served. The cooking water can be used to make fish soup or sauces.

Fish is one of the most important first foods for babies. To prepare, mash boiled fish fillet from the family pot with some cooked sweet potatoes or taro and a little milk or fish soup. Remove all bones.

Baking keeps the goodness inside the fish. Big fish, particularly fatty ones like tuna and mackerel, are best baked. Fish is cleaned and put on clean coconut leaves, which are woven together, keeping the fish inside. Bake in an earth oven for an hour. When cooked the fish can be served with coconut sauce or lemon juice, and cooked root crops.

Grilling is a quick and easy method. Fish is prepared and then placed on top of hot charcoal, hot firewood, or a griller plate. It cooks quickly in its own natural juices. Always make sure that the fish does not burn.

Grilled fish

Four servings:

1 medium whole fish (about 1 lb or 500 grams) 2 tomatoes 1 small onion 1/2 cup coconut cream 1/2 lemon Banana leaf

- 1. Start the fire, then prepare the food.
- Clean the fish thoroughly.
- Soften the banana leaf on the fire and prepare by folding in half.
- 4. Put fish on banana leaf, scatter sliced tomatoes and onion over the top.
- Add coconut cream and sprinkle lemon juice over the top.
- 6. Wrap everything together and place on the fire.
- 7. Cook for 15—20 minutes.
- Serve with boiled taro or sweet potatoes.

Fish cakes

Four servings:

2 cups cooked fish 2 cups cooked taro 1 egg 1 small onion (chopped) Salt and pepper (optional) Flour for coating Oil for frying

- 1. Remove the bones from the fish.
- Mash the taro.
- Mix together fish, taro, egg, chopped onion, salt and pepper.
- Shape the mixture into flat cakes.
- 5. Dip fish cakes in flour.
- 6. Fry in hot oil.

Note: Makes a delicious snack for young children.

Variations:

- A few herbs can be added to improve the flavour.
- Tinned fish can be used.
- Cooked yams or sweet potatoes can be used in stead of taro.

Tasty fish snacks

Twelve to fifteen servings:

2 cups soya sauce
Juice of 3 lemons
1 tablespoon sugar
1 teaspoon salt
Garlic (ground) (optional)
Pepper (optional)
Chillies (ground) (optional)
Ginger (ground) (optional)
Fillet of 1 large fish (approximately 6 1/2 lbs or 3 kilograms)

- Prepare marinade for soaking the fish by mixing soya sauce, lemon juice, sugar, salt, garlic, pepper, chillies and ginger.
- Wash, clean and fillet the fish. Remove the skin and carefully cut out any dark red muscles.
- Cut thin slices of flesh along the length of the fillet (about 1/4 inch or 5 mm in thickness).
- Wash, drain and place in marinade. Cover and place in a refrigerator or on a bed of ice to keep cool for approximately 12 hours. Mix occasionally.
- Remove fish from marinade and wash quickly in fresh water to get rid of the brown colour of the sauce.
- Lay the fish pieces out to dry, either on a clean wire-mesh tray in a sunny place for 1 to 2 days, or in a warm oven for two hours (100°F or 40°C) until flesh is completely dry. Turn strips over regularly.
- 7. The fish snacks are ready when the flesh is dry and has a tough and chewy texture.
- Store in clean, dry plastic containers or plastic bags, in a cupboard or cool place.

Note: Good snack for children and an excellent way of preserving fish. Can also be cooked by soaking in water and cooking with onions and coconut cream.

Fish in taro leaves

Six servings:

1 medium fresh fish

24 tender young taro leaves

2 coconuts

3 cups water

2 small chillies

1 small onion

6 cocktail sticks or sharpened fronds from coconut leaf (6 inches long)

Grate coconuts. Add water, squeeze out the cream. Strain and salt.

Scale and clean fish thoroughly.

Cook and remove flesh from

Chop onion and chilli finely.

Lay out 3-4 taro leaves. Make a hollow and put in fish, onions, chillies and coconut cream. Parcel neatly, using coconut fronds or cocktail sticks.

Place in a pot. Continue until all ingredients are used.

Cover parcels with coconut cream and steam until cooked.

Serve with root crops.

Savoury fish hash

Four servings:

2 cups cooked flaked fish or canned fish

1 cup cooked diced taro or sweet potatoes

1 hard-boiled egg, chopped (optional)

2 tablespoons chopped green pepper

2 tablespoons oil

1/2 cup milk

1 teaspoon Worcestershire sauce

Combine all ingredients except the oil, and mix until blended.

Heal oil in a large fryingpan; add the fish mixture and flatten out.

Cover and cook over heat until bottom is brown.

Fold over and serve.

Baked fish loaf

Four servings:

2 cups cooked flaked fish or canned fish

1 egg

1/2 cup milk

2 teaspoons lemon juice

tablespoon melted butter

3 tablespoons minced onions 2 tablespoons chopped green

pepper

Combine all ingredients and mix until thoroughly blended.

Put mixture into a buttered baking dish and bake i400°F (200°C) oven for 25 minutes

Fish stew

One serving:

1/2 cup water 1 small piece fish fillet

2 tablespoons mixed vegetables, fresh or frozen

1 tablespoon coconut cream

Prepare the vegetables and put in saucepan with just enough water to cover them.

Clean and cut the fish into even pieces and add to the vegetables. Cook over the fire.

Add coconut cream and simmer until the fish is cooked.

Mash everything together before serving.

A nutritious meal for Note:

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