

WHAT DO TUNA EAT? A TUNA DIET STUDY

Tuna live in different ecosystems throughout the Pacific Ocean and they adapt their feeding habits to what is available in their environment. To acquire better knowledge of their diet as well as understand how species interact (i.e. who eats who and in what quantity), the stomachs of tuna caught by fisheries are collected by scientific observers in several countries in the region. These are then examined at SPC to establish the species and the quantities of prey consumed.

Yellowfin tuna *Thunnus albacares*

Tuna have a high metabolic rate and digest their food quickly.

**Valérie Allain,
Oceanic Fisheries Programme,
SPC, Noumea
New Caledonia**

Although their daily ration is estimated to be 5 to 15% of their weight, according to their age, the average stomach content is low, at around 0.3% of the body weight; that is, for a 1-m-long yellowfin tuna, which weighs about 17 kg, the stomach contents will be about 50 g, the equivalent of a hen's egg.

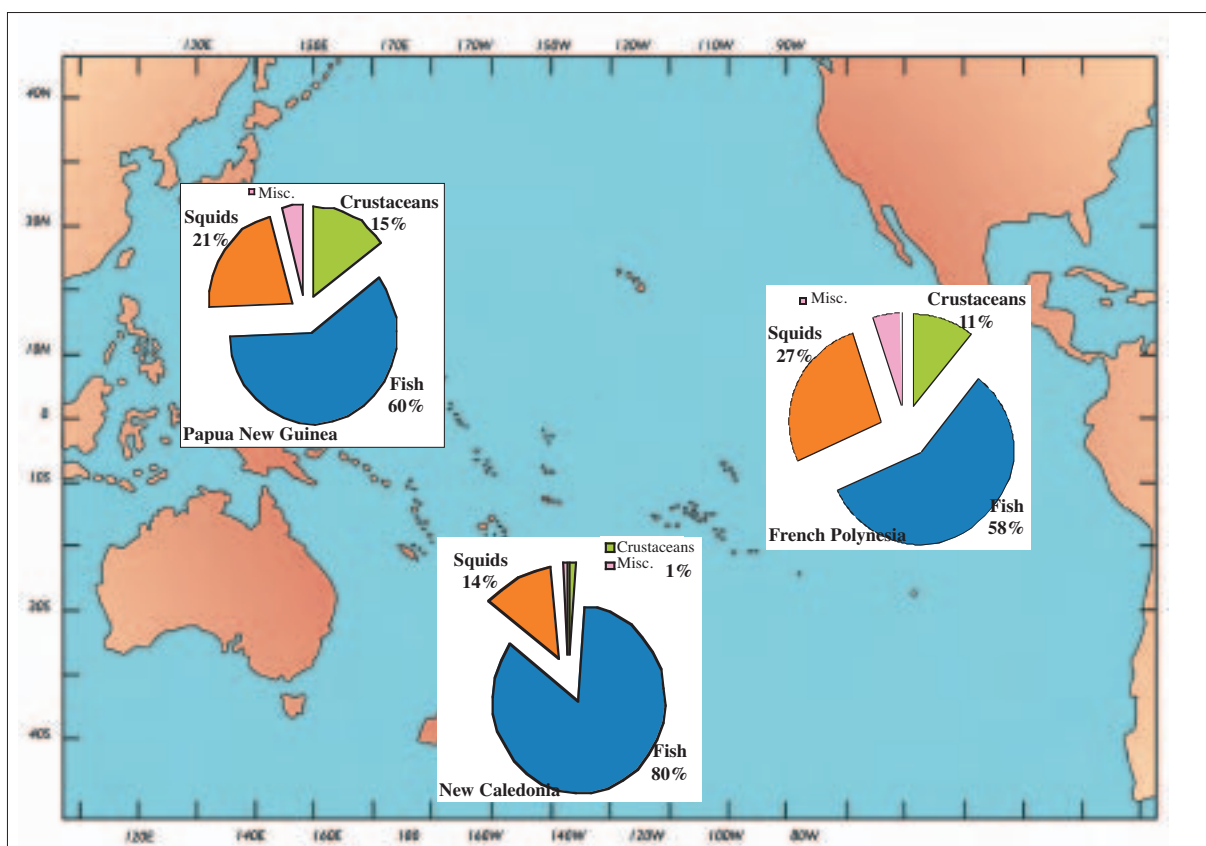
In general, prey items measure less than 15 cm and their average length varies between 4 and 7 cm according to certain areas.

Fish are the main prey of yellowfin tuna, followed by squid. Crustaceans are negligible in the diet of New Caledonia yellowfin tuna, whereas they represent a large proportion of the diet of tuna in Papua New Guinea and Polynesia.

The main squid identified in the three areas is *Stenoteuthis oualaniensis*, which is characterised by the presence of a large photophore on its back.

In New Caledonia, yellowfin tuna prey on surface fish such as flying fish or skipjack, and also deep-sea fish such as lancetfish and other fish of the tuna family.

In Papua New Guinea, prey consist mainly of surface organisms such as flying fish, pufferfish, crab larvae and a large portion of juvenile reef fish, such as surgeonfish or triggerfish.



The three areas considered in the study: Papua New Guinea, New Caledonia and French Polynesia



Left: Stomach contents
Right: The squid *Stenoteuthis oualaniensis*



Some species found in tuna diet in New Caledonia:
Juvenile skipjack (top right),
flying fish (top left), and
lancetfish (bottom right)



Some species found in tuna diet in Papua New
Guinea: Juvenile pufferfish (left), and
triggerfish (right)

In French Polynesia, the yellowfin tuna diet is a mixture of surface prey with numerous juvenile reef fish, such as surgeonfish and rabbitfish, but also deep-sea fish such as barracudinas.

The knowledge acquired in studying the diet of tuna and other top predators such as sharks, marlins, and dolphinfish will be used to assess the impact of fisheries and also cli-

matic phenomena such as El Niño on tuna and the ecosystem they belong to.



Some species found in tuna diet in French Polynesia: Juvenile surgeonfish, and filefish

