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WORKSHOP ON FISH POISONING AND SEAFOOD TOXINS

SITUATION SUMMARY – SOLOMON ISLANDS

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Introduction

Proven incidences of ciguatera fish poisoning in Solomon Islands are uncommon. Examination of the records pertaining to cases of suspected fish poisoning reveal that very few cases have been reported, and of those that have the cause of the illness has more often than not been due to simple food poisoning due to consumption of bad fish which had not been handled or preserved properly after being caught. In a nation where the annual catch of reef fish in the subsistence/artisanal sector is estimated at 12,000t, it can be assumed that if the causative organism for ciguatera was common here, then cases of this form of fish poisoning would be much more commonplace.

The Fisheries Division of the Ministry of Natural Resources is aware that cases of ciguatera poisoning do occur from time to time, but such incidences appear to be very localised and transient in nature. In general, it appears that genuine cases of ciguatera tend to occur in the more remote island groups, eg. Ontong Java in the north, Rennell and Bellona in the south, and some of the smaller islands in the Eastern Province of the Solomons (see map). However, the problem is not considered to be a major one, and consequently a proposed research undertaking in 1983 into the distribution and abundance of the causative organism was afforded low priority and finally not undertaken due to manpower and financial constraints.

Some cases of scombroidoxism have been diagnosed in the national capital, Honiara, on Guadalcanal, after consumption of skipjack which had been rejected for processing by one of the local tuna companies. Similarly, cases of shellfish poisoning have been diagnosed in the Western Province in past years, and there is on file records relating to poisoning due to consumption of turtle meat.

This paper details some recorded incidences of various types of fish poisoning in the country.

1. CIGUATERA

The first recorded incident of ciguatera poisoning dates from 1975. In May of that year, a Taiwanese fishing vessel went aground on Indispensible Reef (see map), and a Government salvage team were sent to the site to salvage the vessel over the period July-September. Whilst on site, the salvage team caught and ate reef fish, and as a result they became ill, exhibiting typical symptoms of ciguatera (neuro-muscular disorders, sensitivity to heat/cold, pins and needles, vomiting and a tingling sensation in the tongue and limbs).

All fish consumed were very fresh; specimens of the 'emperor red snapper', Lutjanus sebae, were blamed. Fortunately, the attack was mild and symptoms wore off in a few weeks; no long lasting effects were noticed.

Although this is the first recorded case of suspected ciguatera, the people of the near-by island of Rennell reported that such illnesses were common after eating reef fish, especially 'red fish', some time after cyclones or storms had caused damage to the reefs. It was hypothesised by the Chief Fisheries Officer at the time that damage to the reef caused by the vessel going aground might have generated a localised ciguatera outbreak.

In July 1982, four families were reported to have developed the symptoms of ciguatera after consuming fish sent to Honiara from Ontong Java Atoll. The health Authorities condemned the entire shipment of fish on this occasion.

Again in October 1982, a 'large number' of people became ill after eating 'red reef fish', mostly Lutjanus bohar, from a shop in Honiara. These fish had been caught at Ontong Java Atoll. The casualties complained of pains across the chest, head pains, disorientation, vomiting, diarrhoea and pins and needles in the limbs for 3 weeks after eating the fish. A dog was reported to have died 4-5 days after eating the entrails of some of the fish. This consignment was similarly condemned by health authorities.

The local inhabitants of Ontong Java are apparently aware of the risk of contracting ciguatera, and avoid 'red reef fish' for certain times of the year.

Cases of ciguatera-like poisoning have been reported on occasion from islanders in the Eastern Islands (Temotu Province) of the Solomons, but no details are available.

2. SHELLFISH POISONING

Reports of shellfish poisoning are even more uncommon than those of ciguatera in Solomon Islands. One detailed account of shellfish poisoning was made by a doctor in the Western Province of the Solomons in 1981. Between May and June of that year, local people living in the villages of Kiapatu, Dunde, Munda and Sasavele in the Roviana Lagoon, and Boboe and Rarumana in the Vonavona Lagoon (a few miles to the west) reported instances where people became ill after consuming 'sea shells'.

The identification of the offending shells was not recorded except in the local language (locally called 'Tetere' shells). One shell type was described as black in colour and found attached to sticks and mangrove roots in the river estuaries of the area. These shells were considered by the local people to be dangerous to eat after the river had flooded. Other sea shells found in aggregations on reefs were also rumoured to have caused problems in the area in past years.

It was stated to the doctor that the local people were well aware of the poisonous effects of these shells, but problems occurred when newcomers or strangers to the area ate them. It was also found that boiling the shells excessively before eating resulted in making them 'safe' to eat.

Case histories:

a) At Kiapatu village, three families ate 'teterere' shells in May 1981. Two of the families over-boiled the shells before eating them and showed no signs of illness afterwards. The third family cooked shells from the same source only lightly, and after eating them suffered mild nausea, numbness of limbs and vomiting. The symptoms were mild and did not require hospitalisation. It was also reported that some of the village dogs and cats drank some of the liquid from the cooking vessel used to cook the shells, and this resulted in them vomiting with 'fit-like' movements to the body. No animals were reported to have died.

A young child was reported to have died after eating 'derevehi' shells at Sasavele village, Roviana Lagoon, in June 1981. No further information was available at the time.

After investigation by the Western Provincial health authorities, a radio broadcast was made warning the people in the Vonavona and Roviana Lagoon areas about the dangers of eating teterere and derevehi shells. No recent cases are known.

3. SCOMBROIDOTOXISM

Tuna fishing is a major industrial activity in Solomon Islands. The national catch exceeds 30,000t each year, composed primarily of skipjack (Katsuwonus pelamis) and yellowfin (Thunnus albacares), taken by purse seine and pole and line vessels. Undersized and physically damaged fish are not suitable for export as round frozen fish, or local processing for canning or arabushi, and are thus often sold on the local market to retail outlets or institutions such as colleges, schools and hospitals. There have been a number of cases of poisoning caused by eating tuna containing elevated levels of histamine.

In October 1984, a number of people complained of nausea and numbness in the mouth after eating 'bonito' purchased from the local fish market. This fish was originally bought from a commercial fishing company as frozen, round, reject fish. The fish had been deep frozen in a supersaline immersion brine freezer. Similarly, patients of the central hospital in Honiara developed similar symptoms after eating bonito purchased from the same source. Poor handling by the buyers of this fish was blamed as the cause for the poor quality of the fish.

Analysis of the flesh of the tuna in this instance was carried out by the Institute of Marine Resources at USP, Suva, Fiji, and very high levels of histamine were discovered, which almost certainly was the cause of the illness.

The Government has put in motion plans to tighten up on the sale of frozen reject tuna by local vendors. The practise at the present time is to buy the deep-frozen tuna (typically preserved at -18°C) and place them in an insulated fish box (or esky) without ice. These fish are then offered for sale to the public. At the end of each day, unsold fish are often refrozen in a domestic chest freezer overnight and then replaced in the esky next day and offered again for sale. This constant partial defrosting and re-freezing is believed to be instrumental in causing elevated histimine levels in the fish.

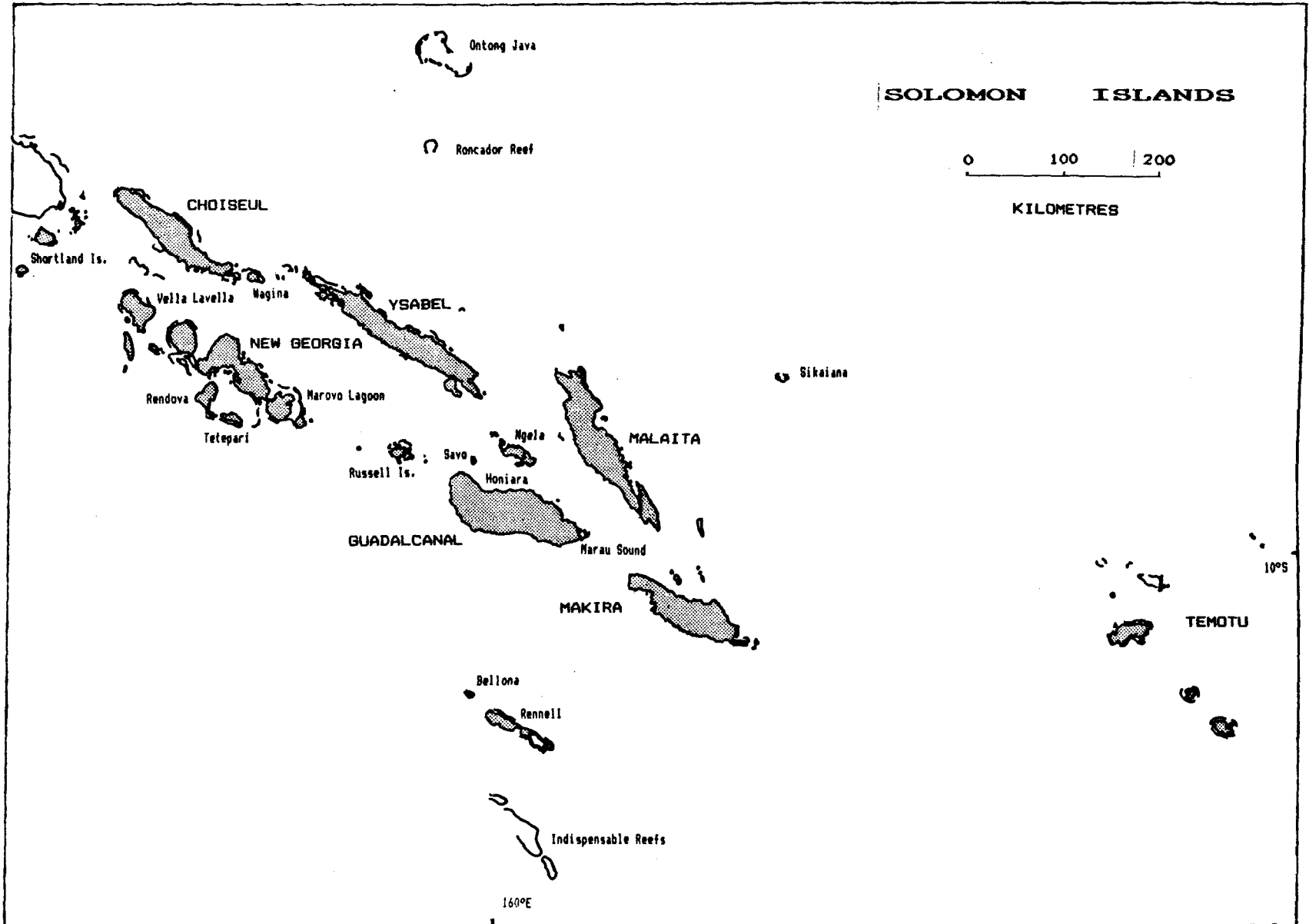
New regulations are planned whereby deep frozen tuna, after purchase from commercial fishing companies, may not be offered for resale to the public until they have been defrosted, washed, gutted and gilled, and placed in a sufficient quantity of crushed ice in an esky to ensure healthy preservation of quality. It is hoped that such handling will result in a more wholesome product for the consumer, and decrease incidences of scombroidtoxism and reports of poor quality fish.

4. TURTLE POISONING

Although some cases have been reported, poisoning due to the consumption of turtle meat is considered to be very rare in Solomon Islands. One species which is considered to be dangerous to eat by 'salt water' people (ie. shore-dwellers) is the Olive or Pacific Ridley turtle (Lepidochelys olivacea). This species is reported to have been responsible for the deaths of eight people at Lau Lagoon, on the island of Malaita in 1950, and three deaths in July 1971 at Sandfly Passage, Florida Islands. Two people were also reported to have died after eating the meat of this species around 1960 at Santa Ana, Makira Province.

Another case reported at Wagina Island in the Western Province in April 1975 was investigated by the Principal Medical Officer. Four children of the same family died after eating meat of an unidentified species of turtle. The Medical Officer, however, believed that acute food poisoning was to blame, as the turtles were believed to have been dead for some time prior to consumption.

The Pacific Ridley is relatively rare in Solomon Islands, and no incidences of turtle poisoning have been reported, at least to Fisheries authorities, in recent years.



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